

September 10, 1910.

FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

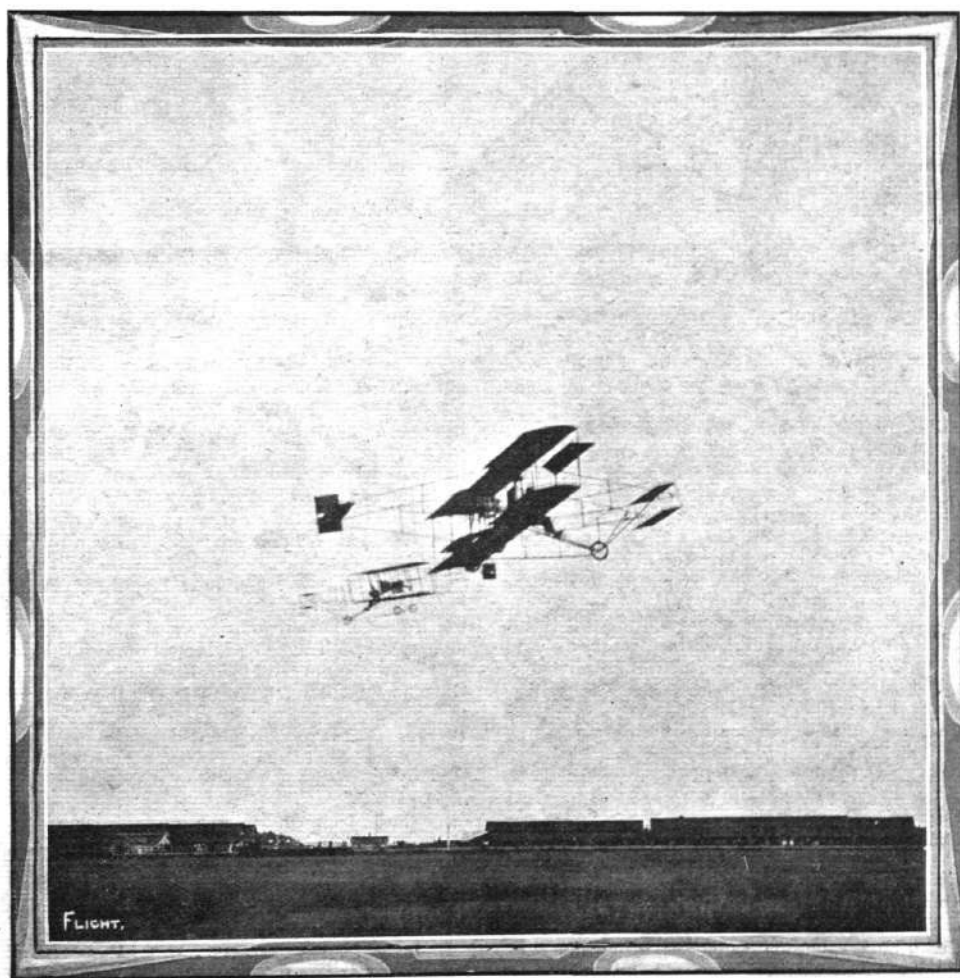
OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 89. (No. 37. Vol. II.)

SEPTEMBER 10, 1910.

[Registered at the G.P.O.]
as a Newspaper.

[Weekly, Price 1d.
Post Free, 1½d.]



Mars and Glenn Curtiss on Curtiss machines circling round each other over Sheepshead Track, U.S.A.

THE SERVICES, AND AEROPLANES.

THERE exists in this country a certain group of individuals which professes to deplore the development of aerial navigation and all connected with it, on the assumed ground that the future possibilities of the movement are principally if not entirely bound up in the use of the aeroplane and the dirigible for purposes of war. The devotees of this cult, who form a portion of the "peace at any price" section of the community, are apt to cry out whenever opportunity favours them against the movement, and to oppose both publicly and privately the use of a single farthing of public money for the perfecting of the infant science. They know nothing of the subject outside of what they read in their own particular daily papers; they can see no possibilities for aviation except as a potentiality for slaughter; and in the plenitude of their ignorance they utterly refuse to see that apart from the use that can be made of aerial craft in war, there are vast commercial possibilities before the science and industry. They deplore, even while they recognise that they cannot stop, the spending of private capital for development purposes, looking upon it as being something akin to flying in the face of Providence. With their opinions, so far as that is concerned, we have nothing to do. Everyone is entitled to think just what he likes. But when he puts his ideas into words, or into action, it sometimes becomes another matter. They have a saying in the Navy which runs to the effect that you may think what you like, so long as you do not think aloud! Not that we would for a moment prevent those who do not happen to see eye to eye with us in this vital matter of aerial development from giving expression to their views, so long as they will accord us similar freedom of expression.

What we have in mind is this. It is held by those of whom we have spoken to be a wicked thing and an iniquity that the Governments of the civilised world should devote men and money to the perfecting of aerial craft to be used to enhance the horrors of war—already rendered horrible enough by the adventitious aids of modern science. Well, we should not quarrel with that point of view if it were the correct and logical one, which we contend it is not. Quite apart from that, however, we object to any implication that the primary use of either the aeroplane or the dirigible will be found in the realm of war. The main prospects of development for the future are, we firmly believe, very much the same as in the case of the steamship, the railway train, and the motor car. Many wise people may yet claim that this is manifest nonsense. You will never be able, they say, to develop up to that stage when air-craft will be as reliable, as safe, and as capable of running to a time-table as either of the three older methods of traction. Yet they are the people who, only a short fifteen years ago, prophesied the very self-same thing about the motor car—and where are their prophecies to-day? Our own view happens to be that the fighting services owe it to the country to assist in the development of the science. We believe, too, that whatever the commercial possibilities of the aerial vessel it will bulk largely in the warfare of the future, and that this nation must be at least in as good a position as its possible enemies. It may be deplored, and perhaps rightly, that a new science should be so easily adaptable to warfare, but that cannot be helped any more than that the development of the turbine should have led to its adoption for use in warships. There are few commercial developments that are not taken advantage

of to increase the efficiency of the world's fighting services in some way or another; and to argue that all progress should be stopped in case it might have a bearing on warfare is rank foolishness.

Let us consider for a moment the development of the steam turbine, of which we have just made mention. It was the invention of a private citizen, but the Admiralty early saw its possibilities, and has spent much money upon its perfection. The result has been that turbine plants have steadily grown in power and efficiency until the reciprocating engine, so far as concerns new war vessels—and the leading mercantile ships also—is as dead as Herod. It is not too much to say that the Admiralty has done more and spent more money for the development of turbine machinery than all the shipping firms of the country together. And yet, can it be argued that the turbine is an instrument of war pure and simple? Can it even be argued that it is *primarily* an instrument of war? The bare query is calculated to raise a smile.

If all the experimenting had been done by the Navy, and if the results had been carefully bottled up so that they had not been available for commercial use, there might have been some ground for classing its development as following the lines of big gun improvement. But nothing of the sort has accrued. Private research, in combination with the financial and practical encouragement of the Naval authorities at the public expense, has resulted in the speedy production of something that has made for commercial and industrial advance. True, that advance has made our fighting machinery more efficient, and we suppose the peace party duly deplores the fact; but aside from that humanity has an engine that is applicable to far more uses than that of the propulsion of fighting craft. Without the spending of public money we could not to-day have had our *Mauritania* and *Lusitania*, because without the turbine the huge power-plants installed in them would have been impossible. It has been a case on all fours with the development of the aeroplane. Exigencies of national defence happened, as is only natural, to be along the same lines as that for commercial advancement, and in the case of the latter, as in that of the former, it is desirable that public money as well as private capital should be sunk.

Aviation will have a wonderful and permanent place in the near future; it will have its commercial side—which will ultimately preponderate—and it will have its military uses. Therefore, it is most obviously the duty of the Government to assist in its development. Of course, no Government will weigh for an instant the outpourings of the minority class of grumblers to which we have referred. It takes all sorts to make a world, as the proverb has it, and to the end of things we shall have with us those who would risk the sacrifice of all that is worth having to do away with war and its trappings. But it is the duty of a Government to disregard the ultra-humanitarian clap-trap which too often disfigures the columns of the Press and which is poured out like a fountain from "peace" platforms. It is not that we fear that our own Government will allow its decisions to be influenced by the dicta of the opponents of war in their policy relating to aerial navigation. What we do fear, however, is that the responsible authorities will rest content to let the experiment and development be done by private enterprise—as indeed was the case with the motor car.

FLIGHT PIONEERS.



MR. ALEC OGILVIE.

HAVRE-DEAUVILLE-TROUVILLE MEETING.

WEDNESDAY, August 31st, was the second day for the competition amongst the aviators flying over the mouth of the Seine, and the remarkable flights of the previous day were once again seen, no less than 14 machines taking part in the over-sea flights, and this in spite of a strong wind, which maintained a persistently high speed, and a wild sea beneath. Morane and Leblanc, who were due to take *déjeuner* at Trouville, decided to fly to their appointment. Twice, however, both Blériot pilots were driven back to the ground, their motors continuing without cessation, and at last both got away at 11.30, almost at once rising to a height of 500 metres, and landing successfully at Deauville. About three o'clock Petrowsky opened the ball at the aerodrome by carrying a passenger round, and again repeated the performance at four o'clock, the official time for starting. At 4.10 Latham and Thomas on Antoinettes both started at the same time, the former crossing the line 300 metres high and the latter at 100 metres, Thomas gradually rising to the level of Latham by the time the middle of the bay was reached. Meantime Morane and Leblanc were re-signalled as arriving back, both making fine gliding flights on to the aerodrome within two minutes of each other.

At 4.15 considerable animation was apparent, Morane rising again at 4.25, Leblanc following within 2 mins. De Petrowsky at 4.30 got away at a height of 150 metres, and Aubrun at 4.32, followed at 4.45 by Marcel Hanriot. Although all sorts of disasters were prophesied none occurred. Precautions were in force, moreover, throughout the meeting, in the form of torpedo destroyers and motor boats ready to rescue any unlucky aviator who might inadvertently descend into the sea, whilst the machines themselves were mostly equipped with life-belts or floats.

As Aubrun took his departure Thomas glided down on his return journey, alighting side by side with Latham. Latham then commenced his second journey across, followed by Martinet, Chassagne, Mamet and Simon. Within a quarter of an hour Zavier, Martin, and Busson took their turn, the final journeys being made at 6.15 by Latham and Morane, the former for his sixth journey and the latter for his fourth. At Deauville, as each of the aviators arrived, and then returned across the bay, the enthusiasm seemed to rise higher and higher until the final departure back for Havre of Latham at 6.54.

For the third and last day of the cross-seas competition, Latham, Aubrun and Morane made the greatest efforts, Latham ultimately being at the head of the list with no less than 16 journeys across the bay, Morane having 11 to his credit, Aubrun 9, and Leblanc 6. Glorious weather was experienced for this wind-up, in strong contrast to the somewhat bad weather which had been experienced during the earlier days of the meeting, although the splendid work accomplished during the stormy days more than ever demonstrated the extraordinary progress attained by the flyers and their machines.

Already a number of the flyers had transferred their machines and installed themselves at Deauville in readiness for the series of events which were to commence there on the following day, but those who were still well up in the chances for securing places in the main events were in readiness at their sheds to increase their respective advantages to the best of their ability. At 4.30 Aubrun and Ladougue were away steering straight for Deauville, followed five minutes afterwards by Barra, Wiencziers and Thomas, Morane arriving from Deauville with a splendid *vol plané* during their departure. Presently Leblanc, Aubrun, Mamet and Simon were dying over the aerodrome, the two latter, after making five circuits of the grounds, returning without alighting to Deauville, Morane, in the meantime, followed by Latham, getting away from the grounds. And so these champions continued to fly backwards and forwards across the Seine with a regularity that became almost monotonous.

A mishap occurred at Deauville during one of the starts, when, after Latham, Mamet and Morane had got away, Chassagne, in an attempt to follow them up, was caught in a sudden gust and brought down with a crash against the grand stand, but fortunately no bones were broken, although his machine was considerably the worse for the encounter.

At 6.15 Aubrun was away for his fourth journey across the bay, followed by Leblanc, Latham having led the way. Ladougue re-started almost immediately afterwards, with Barra on his track, both flying direct for Deauville, whilst crossing them at the same time were Latham, Morane, Simon and Mamet, the latter three alighting at the Havre aerodrome almost simultaneously. Latham, however, after flying round the grounds, took a trip over Havre with the purpose of keeping a dinner appointment with M. Deutsch de la Meurthe. Simon and Mamet, after five turns round the aerodrome, were away again for Trouville, followed by Paillette, who for the second time was making the journey, and with this departure the

events so far as Havre was concerned were closed, the centre of the meeting being transferred to Deauville for the following day.

The results of the meeting were as follows:—

Over-Sea Flights.—Latham, 16 journeys; Morane, 11; Aubrun, 9; Leblanc, 6; Mamet, 6; Simon, 5; Ladougue, 5; Thomas, 3; Wiencziers, 3; Barra, 1; Hanriot, 1; Martinet, 1; Martin, 1; de Petrowsky, 1; Tetard, 1.

Distance.—Simon, 565.8 kils.; Latham, 555.6 kils.; Mamet, 482.4 kils.; Aubrun, 344.2 kils.; Legagneux, 274 kils.; Morane, 265.2 kils.; Barra, 209 kils.; Ladougue, 148 kils.; Thomas, 141.8 kils.; Leblanc, 123.6 kils.; Hanriot, 121 kils.; Molon, 120 kils.; Martin, 105 kils.; Wiencziers, 92.6 kils.; Kuller, 86 kils.; Chassagne, 83 kils.; Busson, 69 kils.

As an indication of the speeds on the outward and return journeys across the bay, we give below the times of the chief flyers for the various journeys on the last day:—

Morane.—First journey out, 11m. 38½s.; return, 9m. 49½s. Second journey out, 10m. 45½s.; return, 9m. 54½s. Third out, 10m. 49½s.; return, 9m. 54½s.

Leblanc.—Out, 12m. 18½s.; return, 10m. 12½s. Out, 11m. 38s.; return, 10m. 10s.

Ladougue.—Out, 14m. 3s.; return, 16m. 33½s. Out, 14m. 9s. Aubrun.—Out, 10m. 3½s.; return, 13m. 41s. Out, 9m. 55s.; return, 10m. 59½s. Out, 9m. 52s.

Barra.—Out, 13m. 19s.

Wiencziers.—Out, 13m. 31½s.

Thomas.—Out, 13m. 7s.

Latham.—Out, 12m. 16s.; return, 13m. 8s. Out, 12m. 8s.; return, 12m. 52s.

Mamet.—Out, 13m. 20s.; return, 10m. 30½s. Out, 12m. 53½s.; return, 11m. 21½s. Out, 14m. 11s.; return, 10m. 47s.

Simon.—Out, 11m. 9½s.; return, 10m. 33s. Out, 13m. 17s.; return, 10m. 37s.

Friday saw the scene changed to Deauville, where glorious weather helped to inaugurate the meeting. An early diversion was made by the arrival on the course from Havre of Aubrun. At one o'clock Mamet opened with three rounds of the aerodrome, Ladougue following with six, and then one after another the flyers got into the air, to the delight of the onlookers. Morane continued for 23 mins. Latham made a long flight of 113 kiloms. in 1 hr. 42 mins., then coming down for replenishments. Re-starting he made a show for the height prize, but only got up 578 metres, being enveloped in a cloud for half a minute, when he started to glide to earth. Ladougue was up for 17 mins. 40 secs. with a passenger, covering 12.8 kiloms. Morane then got away for a high trip, rising to 1,660 metres in 20 mins., returning to the aerodrome with a fine *vol plané*. Simon had been in the meantime totting up a good score for distance, finishing at 5.45 with 116.8 kiloms. to his credit in 1 hr. 37 mins. Rising again, followed by Morane and Marcel Hanriot, with some of the flyers already in the air, and Wiencziers, Ladougue, and Barrier, who took a 10 minutes' turn together, no less than eight machines were in flight at the same time at this moment. Between six and seven o'clock Latham, Simon, and Wiencziers were all up for distance, covering, respectively, 123.2 kiloms. in 1h. 49m. 33s., 68.8 kiloms. in 58 mins. 22 secs., and 44.8 kiloms. in 42 mins. 31 secs.

Saturday proved a sensational day, when Morane, still thirsting for height conquests, put his performance of Monday completely in the shade by rising to 2,582 metres—a startling advance on his own previous world's record. Although the day opened wet, the showers were soon dissipated by a genial sun, and gave a chance to the flyers.

Petrowsky, followed by Kuller and Wiencziers, made the first essays, Simon made a quick high ascent, and Latham, who with Morane had risen from the aerodrome, had to return as he had trouble with his oil supply. Wiencziers for his flight covered 97.6 kiloms. in 1 hr. 32 mins. Simon scored 113.6 kiloms. in 1h. 37m. 45s. Wiencziers, re-starting at 3.35, totted up another 48 kiloms. in 47 mins. 18 secs. Aubrun was up for 4 mins. 2 secs. only. Whilst Barra and Mamet were circling round the grounds, Latham and Morane started away for the altitude competition, both these flyers being soon lost to view in the clouds. For some little time so far as the spectators were concerned they were non-existent, but at 5.14 Latham reappeared and was seen to be planning to earth with the motor stopped. He was soon down and finished with a circuit of the aerodrome before alighting. He had been up for 1h. 5m. 6s. and had reached a height of 1,190 metres.

Morane in the meantime was still out of sight, and no little anxiety was felt by those who were watching for his reappearance. At last a message was received at the aerodrome that Morane had alighted about 3 kiloms. away on some property of Baron de Rothschild's. Instantly messengers by car were despatched to

"rescue" him, but on the way out Morane himself was met carrying with him his barometer, which showed no less an altitude than 2,582 metres. During this extraordinary flight he had a very unpleasant experience, his motor stopping suddenly and his machine dropping dead straight with the cessation of the power, and only by his extraordinarily skilful manipulation of the planes was he saved from adding one more to the list of daring pioneers lost in the science of aviation. So impressed was he with the experience that he firmly asserted that he should never attempt such a height again. Interviewed immediately after his return to the aerodrome, he gave the following details:—

"I started with the full determination this time to beat the world's records for altitude. I rose up higher and higher in great circles, taking the Cape of La Hève as my guiding-point below. When I reached a height of 3,500 ft. I began to feel very cold. However, I had put on very thick clothes, and I forged upwards, trying to keep my face in the sun as much as possible. A little after five o'clock I saw that my barometer registered 6,500 ft., and my motor, though it continued to turn, nevertheless seemed to weaken. Still I decided to push on higher still, and kept going up. The aerial currents then gave me trouble, as I met three or four different ones, and then I began to think of coming down. However, from that height it is always a delicate problem. At 5.16 p.m. I saw that my barometer registered 8,510 ft. That was enough, I thought, and as my motor had become weaker and weaker it was high time to start down. I shut it off and started.

"It was a big plunge, I can tell you, and after coming down about 1,600 ft. I felt dizzy. A sickening feeling came over me, and I felt a buzzing in my ears. I thought that I was about to swoon, and I set the motor going again. I rested a little; then shut off once more. All seemed to be well, except that I was coming down very fast. I made the contact again, and then, to my horror, the motor completely missed. There were a few spurts, and that was all. My propeller stopped completely at a height of about 4,500 ft. The descent lasted perhaps 40 secs., but, such as it was, I shall never forget it. I remained cool, and steered in a wide circle. I landed in the midst of a meadow, and here I am. I flew to a record height and I had a record fall, but one thing I shall say, and that is that I shall never do it again."

Needless to say the altitude prize fell to his lot, whilst Simon secured the speed event of the day and also the long distance contest.

The third day at Deauville was greatly spoiled by a violent wind which prevailed. Petrowsky was again the first to get up and circled round the course six times. Latham, with the idea of overhauling Simon's total for distance, started on his machine, and whilst flying low to avoid the worst of the wind he got caught in an eddy near the grand stand and in recovering himself just managed to brush past a tree, from which some of the leaves were torn and remained for some time on one of his planes. Rising somewhat he made a detour towards Trouville, returning soon afterwards to the grand stand, having accomplished 25.6 kiloms. in 38 mins. 32 secs. At 3.14 Latham again took the air, re-landing after covering 52 kiloms. in 1h. 4m. 37s. Morane totalled up 20.8 kiloms. in 19 mins. 35 secs. and Audemars for five circuits of the course 4.8 kiloms. in 4 mins. 44½ secs. Presently Latham made a further start but found the wind so aggressive that he was being driven away in the direction of Havre and thought it therefore best to return, after a short flight of 9.6 kiloms. in 38 mins. 25 secs. Simon and Hanriot were also up for essays and finally the meeting was declared closed in consequence of the wind, at 6.25.

Monday, the fourth day of the Deauville section, the weather having modified, Kuller made the first start with six circuits in 10 mins. 27 secs. Bouvier, Molon and Tetard followed with short flights; then Kuller, with a try for the speed prize, covered 9.6 kiloms. in 9 mins. 17½ secs. Wiencziers, with a passenger, flew for 60.8 kiloms. in 1h. 11m. 6s., thereby securing the passenger prize. Ladougue, who also took up a passenger, was only up for 4.8 kiloms. in 4 mins. 16 secs. Later, Latham covered 80 kiloms. in 1h. 31m. 34s.; Simon, 51 kiloms. in 44 mins.; Morane, 43.2 kiloms. in 37 mins. 54 secs.; the latter at a height of 500 metres. Kuller then indulged in a high flight, Latham re-started for another 72 kiloms., and Wiencziers for 59.2 kiloms., which he covered in 57 mins. 16 secs. A little before this, Petrowsky took up Capt. Meyer of the Artillery as passenger, but only remained up for two circuits of the aerodrome. Simon and Latham re-starting, added to their score respectively, 72 kiloms. in 1 hr. 23 mins., and 33.6 kiloms. in 20 mins.

For the day the winners were:—

Altitude.—Morane, with 560 metres.

Speed.—Kuller, with 9.6 kiloms. in 9 mins. 17½ secs.

Distance.—Latham, with 80 kiloms.

Passenger Carrying.—Wiencziers, with 60.8 kiloms. in 1h. 11m. 6s.



THE GREAT HAVRE-TRIOVILLE-DEAUVILLE MEETING.—Latham on his Antoinette arriving at Trouville upon one of his many overseas journeys at this aviation meeting.

THE NEW CURTISS BIPLANE.

THE accompanying interesting drawings, reproduced from our American contemporary, *Aeronautics*, show the general arrangement and many of the more important constructional details of the new Curtiss biplane. This machine does not differ in its general lines from the original Curtiss aeroplane described in *FLIGHT* on July 3rd, 1909 (Vol. I, p. 389), but the span now measures 32 ft., and the chord of the planes is 5 ft., the gap between the planes being the same amount. All these dimensions are greater than on the earlier Curtiss model. In order to facilitate transport the main planes are built in five sections, which are detachable. The joint of the main spars is formed by a steel sleeve made of 18-gauge metal. This sleeve is split longitudinally along the back, and the edges turned out to form flanges, which are drilled to take bolts; by this simple device the sleeve is clamped upon the spars. A couple of bolts also pass diagonally through the body of the sleeve, in order to centre the spars in position. When trussed by the wire bracing there is, of course, no bending strain on the joints.

Details of the camber of the plane are given in the accompanying sketches, and the surfacing material is Baldwin's rubberised linen. This is placed on the tops of the ribs only, and is applied in sections of 6 ft. span, the sections being laced to the large ribs which lie adjacent to the main struts. The fabric is tacked down to the small ribs through a protecting strip of tape.

Laminated ash and spruce are the two woods chiefly employed in the construction.

Fourteen feet in front of the main planes is the elevator, which has a span of 7 ft. with a chord and a gap each measuring 2 ft. 3 in. The planes of this member are doubled surfaced. In the rear is a fixed horizontal tail plane having a span of 7 ft. and a chord of 2 ft. 6 in. Intersecting this plane at right angles is the rudder, which also has a chord of 2 ft. 6 in. and measures 3 ft. in height. The elevator and the tail planes have both cambered sections, so that they are normally lifting planes; the camber is represented by a versine height of $\frac{1}{4}$ in., measured one-third of the chord from the leading edge.

At the extremities of the main planes, situated midway in the gap, are balancing planes, having a span of 9 ft. 11 in. and a chord of 2 ft. 9 in. Four feet of the span of each balancer projects beyond the extremities of the main planes. The control of these members is effected by wires attached to a lever that forms the back of the pilot's seat, and the pilot controls their movements by leaning his body to one side or the other. In order to rebalance the machine if

it has heeled over, he leans towards the rising side; in other words, keeping the body upright automatically tends to check canting. This action, it will be observed, is to all intents and purposes that advocated by Sir Richard Paget in a recent issue of *FLIGHT*. The essential point of Sir Richard Paget's contention is that the system of control should be such that the pilot should automatically perform the correct operation for balancing the machine so long as he succeeds in keeping his own body in a normal position. This, it will be observed, is what the pilot of the Curtiss biplane does so far as concerns lateral stability. If, when flying the Curtiss biplane, the pilot found himself unable to lean far enough over to one side without assistance, he would have to pull himself across by catching hold of one of the struts of the machine. It is precisely this action that Sir Richard Paget advocates in principle, and it is, as our readers know, contrary to the usual system of control, where the hand is employed to push a lever towards the rising side of the machine.

Although this reaction system applies to balancing the Curtiss biplane, the ordinary method of control is employed in tilting and steering. Situated in front of the pilot is a wheel mounted in a vertical plane on the top of a pivoted column. Pushing the entire column forward dips the nose of the machine down, and pulling the column backwards tilts it up. The connection to the elevator is effected by a bamboo rod. Turning the wheel to the left steers the machine to the left, on the same principle as an automobile; the steering-cables pass round grooves in the steering-wheel itself, and they are carried through the hollow steering column.

The engine on the new Curtiss biplane is an 8-cylinder model of Curtiss' own design. It is a V-type water-cooled motor, and is direct coupled to a 7 ft. Curtiss propeller. The engine control is effected by an accelerator pedal on the left of the steering column, and there is also a throttle-lever close to the pilot's seat. Another pedal, under the action of the pilot's right foot, is employed to cut off the ignition, and to apply a brake to the front wheel of the chassis that carries the machine on the ground. This chassis is a three-wheeled construction, as in the earlier Curtiss aeroplane.

It is estimated that the weight of the machine is 650 lbs., and the first flight therewith was accomplished by C. F. Willard, on August 11th, over the Hempstead Plains. On August 14th the same pilot carried three extra passengers for a distance of a quarter of a mile. On this trip the total weight supported was probably about 1,200 lbs.; the effective area is 320 sq. ft.

"PARIS-LONDON" FLIGHT.

AT last Mr. Moissant's perseverance and pluck have carried him to the end of his remarkable journey of flying from Paris to London with a passenger. It will be remembered that his original start was from Issy, on August 16th, at about 5 p.m., and the last stage of the journey, after the various mishaps and disappointments of the aviator already recorded by us, was enacted on Tuesday last. Commencing to adjust his Blériot early in the morning, he rose at five minutes to one from Drane's Farm, Kemsing, in Kent, and getting clear of his starting field, first made a move towards London, but in remembrance of a promise to Sir Mark Collett he then turned in a wide circle, flying over the front of St. Clare in order that Lady Collett, who is a great invalid, might see him in flight. Unfortunately, the old adverse currents in the valley were thus met with, these again proving his master in getting over the hills, and in about half an hour he was compelled to again descend in a cornfield, near Otford Station, some two miles from Drane's Farm. At this fresh rebuff he was inclined to be slightly downhearted, but his pluck overcame everything, and about five o'clock he was away

again with a splendid ascent, and this time for good. By 5.30 he had reached the Crystal Palace, but his want of knowledge of his surroundings made it risky for him to come down in the grounds, and after circling round the North Tower he continued his flight towards Gipsy Hill, then returning to Penge, and finally alighting upon the new Beckenham cricket ground, about a mile and a half from the Palace. In sweeping down at rather a sharp angle he managed to buckle the wheels and slightly damage the underframe, in addition to breaking his propeller, the fourth since his start from Issy.

Thus ends this splendid international journey, and the only regret is that Mr. Moissant was unable to go through with the voyage to its completion in the extraordinarily successful manner in which it started, so that he might have reaped the rich reward from the Metropolis which undoubtedly is his due. At least he will have a memento of the occasion in the £50 silver cup which has been presented to him by the *Daily Mail*, his mechanic and companion in his voyage, Fileux, receiving a smaller silver cup for his part in the historical flight.

MR. ROBERT LORAINÉ'S HOLYHEAD-DUBLIN FLIGHT.

By his fine flights already achieved, Mr. Lorainé ranks amongst the best pioneers of the day, and that he is mainly prompted in following up the art for itself is clearly evidenced by his exceptional avoidance of self-advertisement in regard to the work which he is accomplishing. Quite quietly and almost secretly on Saturday last he arrived at Holyhead from Cerny, where his Henry Farman machine is stored since his mishap when attempting to fly from that point to the Anglesey port. The weather being all that was desirable for a successful flight, Mr. Lorainé determined to attempt the journey across the water to Dublin, with the intention of returning to Holyhead as soon as possible, anticipating the time the journey each way would occupy to be about 1½ hours. At six o'clock he was ready, and in spite of all precautions a goodly number of the public had somehow got wind of his intentions and

gave voice to their enthusiasm at the apparently successful consummation of the project. The recent heavy rains, however, were against the attempt, having saturated the ground to such an extent that it was impossible to get the aeroplane up to a sufficient speed to enable it to get clear of terra firma. In the attempt, unfortunately, the machine came into contact with a boulder, smashing the lower part of the aeroplane, and necessitating considerable repairs. Mr. Lorainé, who was somewhat mixed up with the wires through the sudden shock, was not hurt in any other way, although he came to the ground with a fair amount of force. Further attempt for the moment was therefore out of the question, and Mr. Lorainé returned by car to Holyhead a very disappointed man. When he makes his next attempt in all probability his starting point will be from Salt Island, which spot he hopes to make for also on his return journey.



NEW CURTISS BIPLANE.—General arrangement and constructional details.

THE BALDWIN BIPLANE.

ANOTHER machine that is attracting considerable attention in America is that employed by Capt. T. S. Baldwin at Mineola. The span of the main planes is 36 ft. 3 ins., which length is divided into five sections of 7 ft. 3 ins., each representing the distance between a pair of main struts. The chord is 3 ft. 8 ins., and the gap 4 ft. 6 ins. Midway in the gap, and at the lateral extremities of the machine, are two balancing planes arranged on the Curtiss system. They are controlled by a lever forming the back of the

pilot's seat. The rudder and the elevator are likewise controlled on the Curtiss principle by a vertical steering wheel mounted on a pivoted column. In this machine the elevator is a cambered monoplane, having a 9 ft. span and a chord of 2 ft. 8 ins. The tail, on the other hand, is a biplane, and is so constructed that the normal angle of incidence can be adjusted by the tension of the tie wires used in the bracing. The spars of the main planes have a section of 1½ in. by 1¼ in., and are nearly elliptical in section.

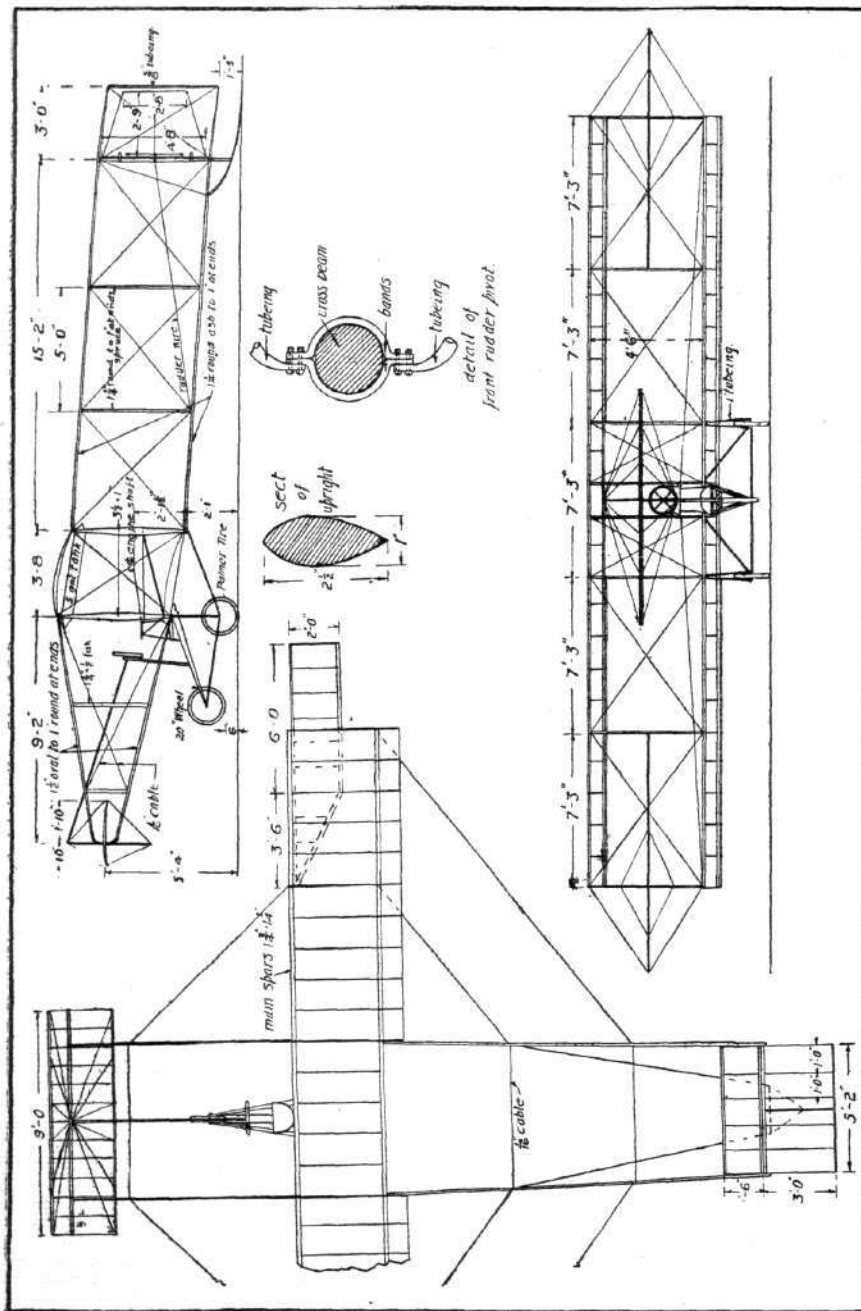
The struts measure 2½ in. by 1 in., and have a section as shown in the accompanying sketch. Spruce is employed for the spars and struts, except in the case of the two rear centre struts which are made of steel tubing and assist in the support of the engine bearers. The front centre struts, although made of timber, are of much stronger section for the same reason.

Butterfly Gliders.

VERY pretty model gliders can be constructed with comparative facility by following the directions contained in a little book written by E. W. Twining, and published by Percival Marshall and Co. at 15. The book is accompanied by coloured plans, and full instructions are given for making these pretty toys, which amuse at the same time that they instruct.

SIMMS British magnetos and distributors are now being used by the Italian Government for their dirigible balloons. The Company have also recently supplied to M. Blériot three of their Simms British magnetos for aero work.

"CONTINENTAL" aeroplane fabric continues to score successes all along the line, M. Bielovucic's "Voisin" on which he performed his recent splendid 360-mile flight in 3 days in France — from Paris to Bordeaux — and also M. Armand Dufaux's flyer, with which he triumphantly crossed Lake Geneva, thereby winning the Swiss Aero Club's prize, being both equipped with it.

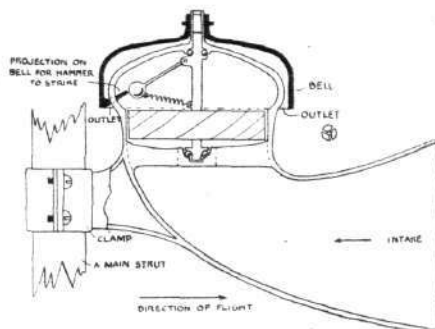


Capt. Baldwin's biplane.—American Aeronautics.

SPEED-ALARMS FOR FLYERS.

SOME MORE COMPETITIVE DESIGNS FOR OUR £5 PRIZE.

[4] 208 In the accompanying sketch for a speed alarm the conical intake leads the air to a fan mounted on a vertical spindle, which also carries a hinged hammer capable of striking a bell when the

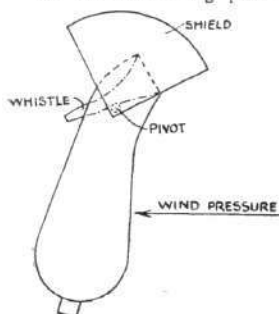


hammer-head has been thrown out by centrifugal force to the desired amount. A spring attached to the hammer-head serves as a means of regulating the speed at which the bell will ring.

Greenock.

R. S. GILMOUR.

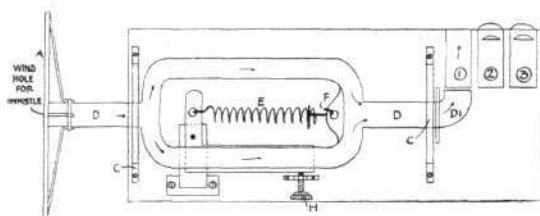
[5] This device gives both ocular and oral indication of downward rate of travel, is entirely automatic in action and has few working parts. It consists of a siren whistle, swinging easily on pinions near its upper end in a suitable framework. The faster the rate of travel the higher the unattached end is carried, and the mouth of the siren whistle is exposed at a pre-determined point to the rushing air, thus giving also oral warning varying with the intensity of its blast.



That whistles rushing through the air will give forth sound is demonstrated by the well-known firework rockets loaded with a number of small whistles which, when released, travel whistling to earth.

Clapham. TRUANESCO.

[6] The accompanying sketch represents a suggestion for using three different toned whistles, numbered 1, 2, 3, on the plan. Wind is led to one or other of the whistles through the pipe, D, which has an orifice facing in the direction of flight. Attached to the pipe, D, is a pressure-plate, A, which moves the other orifice



of the pipe from one whistle to the next according to the air-pressure on the plate. A spring, E, holds the pipe normally in communication with No. 1 whistle, which is attuned to blow at a pre-determined velocity.

Bournemouth.

F. H. NORRIS.

[7] In the accompanying sketch of my speed alarm, A is a vertical standard upon which slides a movable collar, B.

To this collar are attached two arms, C, hinged at both ends; at one end to the collar, B, and at the other to the rods, E. The point of connection of the arms, C, with the rods, E, can be adjusted by means of the set-screw, D.

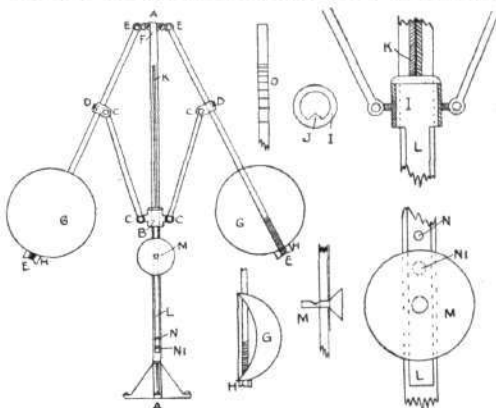
The upper ends of the rods, E, are hinged to a revolving collar, F. At the lower ends of the rods, E, instead of the solid balls of the steam engine governor, are fixed two solid hemispheres, G, but with the diametric face hollowed out to a concave form. The position of the hemispheres, G, on the rods, E, can be adjusted by the nuts, H.

Inside the sliding collar, B, is an inner collar, I, with a projecting feather, J, which works in a groove, K, cut in the vertical standard, A.

When the instrument is set in action by a current of air, the hemispheres and attached rods revolve round the vertical shaft.

Centrifugal force causes the hemispheres to increase their distances from the vertical shaft. When this takes place, the sliding collar, B, is raised upon the shaft, carrying with it the inner collar, I. To the lower rim of the inner collar, I, is attached a bar, L, which works against the lower portion of the vertical shaft.

The end of this bar, L, works through a hole in the mouthpiece



of the whistle, M. At the lower end of the bar, L, are two holes, N and N¹.

As the sliding collars, B and I, and with them the vertical bar, L, are raised by the increasing distance of the hemispheres, G, from the vertical shaft, the holes, N and N', pass in succession opposite the bore of the whistle, M, and after them the tip of the bar, L.

It is evident that the more rapid the revolutions of the hemispheres round the vertical shaft the greater will be the height to which the sliding collars and the bar, L, will be lifted.

By making the hole, N^1 , larger than the hole, N , the shrillness of the whistle is proportionally increased, this giving the person in charge of the instrument a double warning of the increased velocity at which the current of air is travelling.

When the excess speed is actually reached, the tip of the bar, L, is lifted above the bore of the whistle, M, exposing it completely to the action of the current of air.

From that moment the sound of the whistle, M, increases in proportion to the velocity of the current of air, and does not cease till this velocity has been reduced to its normal value.

For the purpose of collecting and concentrating the current of air passing through the whistle, M, it is provided with a bellmouth, as shown. On the other side of the vertical shaft is engraved a scale, O, the divisions of which must be ascertained by experiments, and on which the position of the sliding collar, B, indicates the velocity of the current of air which actuates the instrument.

This instrument, when stationary, may be used to indicate and call attention to the force of the wind, and, when attached to a moving body, to indicate and call attention to the speed at which it is travelling.

In the case of an aeroplane, the advantages are :—

The scale, Q, always indicates the accurate speed.

The scale, O, always indicates the accurate speed.
The holes, N, N¹, give a double warning before the danger-point.

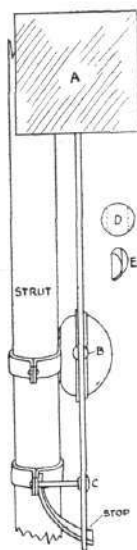
Once the danger-point is reached, the sound produced by the whistle, M, does not cease till the speed has been reduced to its normal, but increases in proportion to the velocity of the current of air.

The nuts, H, and the set-screw, D, permit of a perfectly accurate indication of the velocity of the current of air being obtained.

L. E. EEMAN.

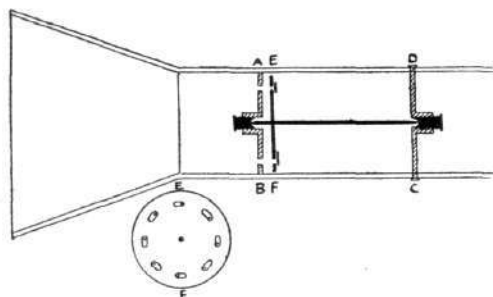
[8] The accompanying sketch of speed alarm shows a simple and cheap device. It is just a continuous-ringing clockwork bell, which can be bought at 1s. 6d., clamped on to the strut, and a washer soldered on to the push. The washer, D, should have its sides bent up, as shown at E, then soldered on to the push of the bell to prevent the arm of the wind or pressure-board from sliding off sideways and the stop at bottom bracket will prevent the arm from coming forward. A is the pressure-board, which can be of wood. B is the push of the bell, where the arm will ring the bell. C is the bearing of the arm. The adjusting can be done by moving either the bell or the pressure-board up and down the strut.

Gateshead-on-Tyne. JAMES COWAN.



[9] My suggestion or a speed alarm is a simple modification of what is called, I believe, a "mouth siren."

It consists of a tube affixed to a funnel. AB is a perforated disc fixed in the tube, which, together with a support, DC, constitutes



the bearings of the free disc, EF. This disc is set with holes corresponding to those on AB, but with small slanting vanes fixed on the back. These cause EF to revolve, and a note is evolved which rises in pitch with an increase of speed.

Chester.

H. BEST.

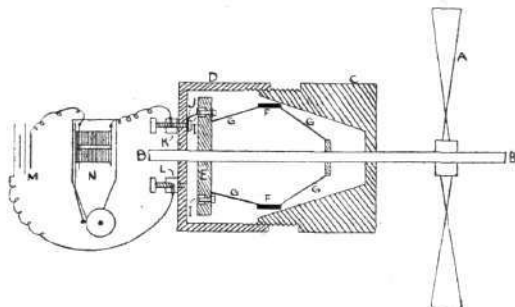
[10] The device for a speed alarm illustrated by the accompanying sketch operates as follows:—

A propeller-fan, A, rotates the shaft, B, at a speed proportional to flight, and the shaft, B, carries a centrifugal governor device with

weights, F, that fly outwards and touch the adjustable cone, C, thus making an electric contact whereby the electric bell, N, will start ringing. The adjustment of the cone, C, enables the speed at which the bell will ring to be regulated. The summary of reference letters below will show the purpose of the other members:—

Southport.

F. WEARDEN.



A, fan driving shaft (B); B, shaft carrying spring governor which revolves in cylinder (C and D); C and D, cylindrical covers, C screws inside D for adjusting purposes; E, round disc made of fibre or other insulating material, with a recess in one side which carries brass ring (I); F, weights fastened to spring (G), which swing out to bigger radius when going a good speed; G, thin, flat springs, connected to brass ring (I) with screws, which also hold ring in place; H, small disc made of fibre to insulate springs from shaft; the disc is made to slide on shaft to allow weights and spring to swing out; I, brass ring let into fibre disc (E) to make electrical contact between terminal and spring governor (G and F); J, brush to carry current from terminal (K) to brass ring (I); K, terminal which is insulated from casing; L, terminal to battery or dry cell; M, dry cells; N, electric bells.

OUR SPEED-ALARM COMPETITION.

Letters accompanied by descriptions and drawings are acknowledged from:—

R. E. Pearson	P. A. Hunt	W. Read
R. Barga	J. W. Wise	H. A. Stallon
A. H. Bell	A. A. Mackintosh	Frank Roberts
E. G. Evans	R. M. Hill and	A. H. Clifton
S. T. Smith	G. T. R. Hill	M. Bruce Ross
J. M. Boyd	E. V. Gratz	J. C. Brooke
C. G. L'Estrange	W. Mitchell	A. Podger
Malone	Bertie Bradbury	J. A. Dalby
D. H. Thomson	J. Martin	W. A. Dickson
A. Sweeney	C. Burrell	H. Warrington
A. D. Turner	D. Waterhouse	Arthur Pugh
A. R. Willmott	W. W. E. von Hemert	E. Warde Fox
T. Lancaster	Harold Smith	W. Langdon Davies
B. Whalley	John G. Merne and	D. W. Ostle
Noel Vernham	W. Little	H. Warrington
J. Cunningham	S. C. Shepley-Part	A. Cochran Herdman
E. Ramsden	W. Smyr	
R. H. Peach	L. Weller	

BRITISH AVIATORS IN AMERICA.

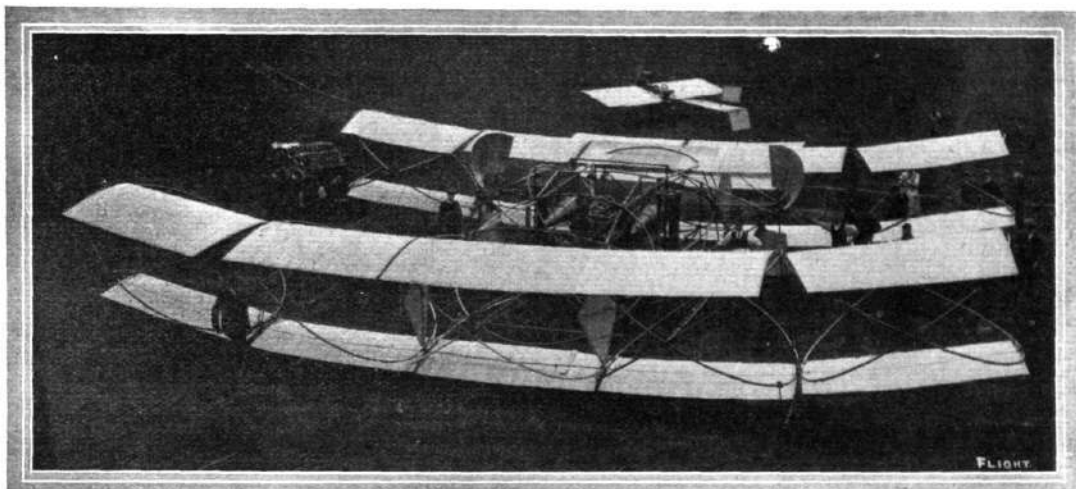
By cables received from New York Mr. Grahame-White appears to have taken the American public by storm. Not only has his splendid mastery of his aeroplane impressed itself upon the Bostonians, but his unaffected charm of manner has placed him in the front rank as favourite at the Boston Aviation Meeting, where he has already made his mark in no half-hearted degree, beating all his competitors with ease. Especially has he scored in the bomb throwing event, in which the points secured by him on the first day were 44, against Glenn Curtiss' 27, Charles Willard's 11, and Ralph Johnstone's 2.

Mr. Willard on the opening day of the meeting made himself popular by taking Miss Phoebe Dwight as passenger into the air for a goodly spin. Mr. Grahame-White, not to be outdone, carried Miss Marie Campbell, and in this again he scored heavily by attaining a considerable altitude, at least twice that of Mr. Willard.

FLIGHT AT MALAGA.

EXHIBITION flights continue at Malaga, Mollieu last week making some fine trips over the sea, whilst Jullerot on his Henry Farman has been daily making his mark at the aerodrome. On Thursday, Mollieu circled over the British vessels which were cruising from Gibraltar, in the course of his flight round the light-house and Malaga Cathedral, Jullerot following him up over the Mediterranean, and joining with him in hovering over the Piazza during a bull-fight, the pair then returning to the aerodrome, where they descended in front of the grand stand. The estimation in which the two aviators are held may be gauged from the fact that Bombita has dedicated two of his finest bulls to them. On Saturday both flyers were entertained by Admiral Exmouth on his ship. Afterwards Mollieu carried out a 20 minute trip to Torremolinos, passing over the chateau where Admiral Exmouth was at tea, dropping flowers by way of greeting, and thence back to the aerodrome.

BRITISH NOTES OF THE WEEK.



THE SEDDON AEROPLANE.—A most unusual type of aeroplane has made its appearance at Wolverhampton, and is illustrated above. It consists of a tandem biplane, and has been designed by Lieut. J. W. Seddon and Mr. A. G. Hackett. Apart from the tandem biplane principle, which has not yet been given any real practical trial, the Seddon machine is also unique in its system of construction, the bracing of the main planes being effected by an arrangement of crossed hoops instead of by the usual system of struts and ties. The constructive work has been carried out by Messrs. Accles and Pollock, at Oldbury, the two engines, which drive Beedle propellers, being supplied by the New Engine Co. The estimated weight of the machine is about one ton, and its supporting surface about 1,000 sq. ft. Beyond the Seddon machine a monoplane is seen.

Grahame Gilmour at Brooklands.

MR. D. G. GILMOUR made a flight of 41 mins. 17 secs. duration on September 1st at Brooklands on his Bat aeroplane with an 8-cyl. 35-h.p. British-built J.A.P. engine.

Mr. H. Piffard at Shoreham.

As a result of solid perseverance and experiments Mr. Piffard is now starting practical work in earnest, and last week was making some satisfactory essays over a half-mile stretch with his biplane.

A Newcastle Biplane.

MR. J. CLEVE JONES, of Newcastle-on-Tyne, assisted by Mr. T. Taylor, of Pelaw, has now got his "Cleveland" aeroplane completely constructed, and it gives every promise of being a successful flyer. The weight of the machine is 800 lbs., it has a length of 26 ft. and a span of 30 ft. A 35-h.p. flight engine by

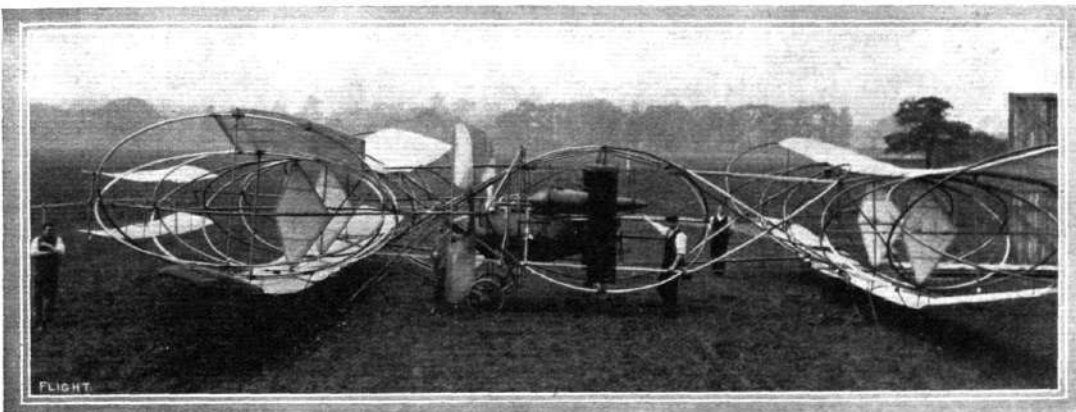
the Thames Ironworks and Engineering Co., weighing 180 lbs., has been installed.

Flying at Brooklands, October 5th.

At the autumn meeting at Brooklands, the Second Aggregate Time Flight Competition is to be held for all classes of aeroplanes, three prizes (60, 30 and 10 sovs., or cup) being available for flights reaching or exceeding at least 30, 15, and 5 mins. respectively, or 2 sovs. per min. to form these prizes if shorter times are made. Entries close at noon on September 30th. Also in connection with this competition a cup, value £60, will be presented by Mr. N. C. Neill for the greatest aggregate duration at this meeting in combination with the last meeting (August 1st).

Mr. S. F. Cody in the Air Again.

At the latter end of last week, Mr. S. F. Cody made a successful flight at Aldershot with his new biplane.



Side view of the Seddon aeroplane.

Progress at Dunstall Aerodrome.

CONSIDERABLE interest centres round the Dunstall Aerodrome, Wolverhampton, and we are likely to have some earnest work going forward in the near future. Last week a short flight was made by Mr. Granville Bradshaw on the Star monoplane, the distance being about 300 yards at a height of 20 or 30 feet, Mr. Bradshaw finishing with an easy land. Lieut. J. W. Seddon, who has now established himself in the shed formerly in the occupation of Mr. Gibbs, is also hoping to have his big tandem biplane (illustrated this week) which has been constructed from designs by Mr. A. G. Hackett, in the air. This machine is one of substantial make, and it is anticipated that she will be able to make a mark as a passenger-carrying machine. The construction has been carried out by Messrs. Acles and Pollock, at Oldbury, under Lieut. Seddon's personal supervision, and two N.E.C. engines of over 100-h.p. are being employed, the aluminium propellers being of the Beedle type.

At a "club afternoon" of the Midland Aero Club, on Saturday last, weather conditions—a 30-mile wind—were altogether against flying, so that 500 or 600 visitors had to mainly content themselves with watching some experiments by Dr. Ratcliffe, of the Birmingham Aero Model Club, with a Bragsmith model biplane.

About 6 o'clock Mr. G. B. Mann brought out a monoplane of his own design, in which metal plays a big part in the place of wood, a 25-h.p. J.A.P. engine being employed. At the outset he damaged one of the wings and had to give up further efforts. Mr. H. F. Holder, on his Humber, although willing to try, was unable to accomplish any rise in the air, the only "flight" being that of Mr. G. E. Bradshaw, who, on his Star machine, was off the ground, at about 20 feet, for 100 yards.

More fortunate on Monday, Mr. Holder on his Humber monoplane made a series of interesting flights as well as on Tuesday morning. Mr. G. E. Bradshaw was also happier with his Star monoplane. Getting well away Mr. Bradshaw flew at a height of some 40 feet over a distance of half a mile. Unfortunately when about to alight an inquisitive cow had placed itself in the line of descent, and Mr. Bradshaw no doubt with humane feeling

remembering Stevenson's old saying, tried to make it less bad for the "coo" by rising over the animal, thereby cannoning into some railings surrounding the course. He escaped injury, but one of his wings was damaged as well as his propeller.

A Possible Belfast to Dublin Flight.

IRELAND having realised the actualities of flight by the recent successful Leopardstown meeting, next year's work is already being looked forward to, and Mr. J. C. Percy, who was mainly responsible for the Dublin meeting, is seriously considering the possibilities of promoting a cross-country event from Belfast to Dublin for a prize of £1,000.

The Fourth "Aeronautical Classic."

THE Aeronautical Society of Great Britain are about to add a fourth volume to their "Aeronautical Classics" series. It is entitled "The Aerial Ship," by Francesco Lana (1670), who was the first writer on ballooning principles, although his invention used vacuum instead of hydrogen gas. This is the first translation published in English, and is the first edition since 1784. The volume includes a portrait of the author, a full biographical notice, a facsimile of his original designs, and a reproduction of a very rare print, showing the application of his idea to hydrogen gas. Uniform with the earlier volumes, the price is 1s. net.

A Forthcoming Biography of the late C. S. Rolls.

WE learn that, under the supervision of Lady Llangatock, a life is being prepared of the late C. S. Rolls, and we are asked in this connection to intimate to those having any original information concerning special incidents in Mr. Rolls' life to communicate with Mr. W. Meads, at 171, High Road, South Tottenham, N. Any particularly interesting pictures, suitable for inclusion in the work, would also be appreciated.

Spiral Tube Radiators.

WRITING in reference to our description of the spiral tube radiator described in FLIGHT of June 4th, the Spiral Tube and Components Co. wish to point out that the weight of their radiators as there stated, which is given as 1 lb. per h.p., includes the water for cooling. When empty the spiral tube radiators usually weigh about 11 to 12 ozs. per h.p.

Mr. Octave Chanute Better.

ALTHOUGH it will not be possible for Mr. Chanute to make a call in London, on his way back to America, to receive the medal of the Aeronautical Society of Great Britain, which this body are anxious to bestow upon him at a public dinner, it is with considerable pleasure that we learn from Miss Chanute that her father is progressing steadily, although slowly. It may be about two months before he will be strong enough to return to America, which will leave him no opportunity for a visit to England.

What We are Coming To.

IN ordering some new motor vans from the White Co., Messrs. Doubleday, Page and Co., who have their headquarters at Garden City, N.Y., which is a centre of the aviation industry, specified that in addition to their signs being painted on the sides of the vans, they should also be painted on top, so that they might catch the eye of the flying men.



PILOTE-AVIATEURS MOUNTING UP.

IN spite of the large number of names already published by us another batch of pilots was duly certified last week by the Aero Club of France as follows:—

- | | |
|--|----------------------------------|
| 181. Sanchez-Besa (Sanchez-Besa biplane) | 193. Lieut. Baugnies (Sommer) |
| 182. Capt. Oulianine (H. Farman) | 194. Lafon (H. Farman) |
| 183. Edmond Poillot (Savary biplane) | 195. Lieut. Piotrowsky (Blériot) |
| 184. Comte de Robillard (Antoinette) | 196. Capt. Dupeyron (M. Farman) |
| 185. Louis Dufour (H. Farman) | 197. Lieut. Girard (H. Farman) |
| 186. Henry Goueney (Hanriot) | 198. Kauffmann (H. Farman) |
| 187. Raymond See (Voisin) | 199. Menard (H. Farman) |
| 188. Glorieux (Sommer) | 200. Caille (H. Farman) |
| 189. Parent (Poulain-Orange biplane) | 201. Florencie (H. Farman) |
| 190. Paris-Lecruc (H. Farman) | 202. Joliot (Koechlin monoplane) |
| 191. Zaikine (H. Farman) | 203. Koechlin (Koechlin) |
| 192. Claude Andre (H. Farman) | 204. De Langhe (Voisin) |
| | 205. Bill (H. Farman) |
| | 206. Senator Raymond (Blériot) |
| | 207. Raygorodsky (H. Farman) |



"Humours of the Dublin Flight Meeting."—The Motor News.

AT THE ROYAL AERO CLUB EASTCHURCH GROUNDS.

AFTER a spell of quietude at the Aero Club's ground at Eastchurch the past week has been a comparatively busy one. Mr. George opened on Monday on a biplane of his own construction and made a very creditable show, circling the course in faultless style several times.

On Tuesday he was again out, and flew splendidly some 7 or 8 miles before coming to earth. His engine was running beautifully and this flight was a distinct advance upon anything previously accomplished by him. Later in the evening he made several circuits of the ground and wound up by carrying a passenger the length of the ground.

On Wednesday Mr. George was astir early and flew for his pilot's certificate. He accomplished the required tests in fine style.

Mr. Frank McClean was also out for a short trial along the ground on the new Short biplane constructed for him. This machine is the first of Messrs. Short Bros.' design to be fitted with a Gnome engine.

On Friday Mr. Grace returned here after a long absence, and he quickly made his presence known to the inhabitants of Sheppey by a series of flights on his Blériot monoplane. His first essay was of some half-hour's duration. Time after time he gracefully circled the course and his exhibition of planing was of a very high order. At 3.30 he started the engine again and after once or twice circling overhead he made off in the direction of Sheerness, passing over the Dockyard, this special flight being dealt with below.

Whilst a second flight of Mr. Grace's was in progress Mr. McClean brought out his Short, and after several long hops he circled the ground two or three times at some 20 ft. This, at only the third attempt, and with the engine not yet adjusted to give off its full power, was undoubtedly a promising performance.

Mr. George was also out again and Mr. Jezzie was making some short flights in a straight line. The latter has not yet quite succeeded in turning in the air, but is making good progress.

On Saturday the wind was very gusty in the morning, but weakened somewhat during the afternoon, and Mr. Grace brought out his Blériot for his other fine cross-country flight. The weather on Sunday was wretched, strong gusty wind and bitterly cold, so of course no one ventured out.

Mr. Cecil Grace Back at Sheppey.

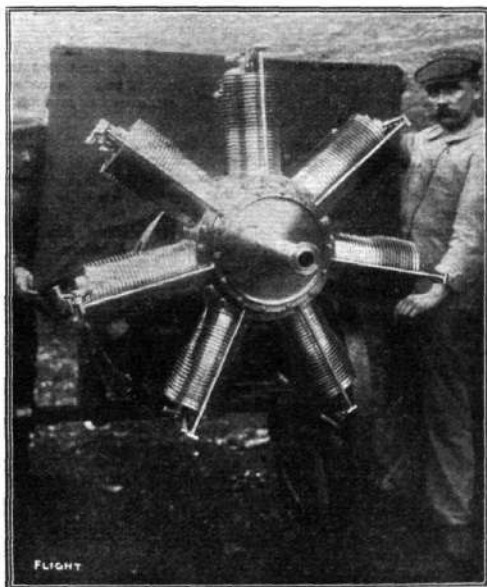
No sooner had Mr. Cecil Grace returned to Eastchurch from the Dublin meeting than he was at work putting in some good flights at the Royal Aero Club's Eastchurch aerodrome. Arriving only on the morning of Friday last week, early in the afternoon he brought out his Blériot—the famous one belonging to Morane, and which Grace lent to Drexel at Lanark when he made his great height record—and at once rose into the air to a good height, making for the Medway, which he passed over, and then the river Swale, circling round the battleships in Sheerness Harbour before turning on his homeward journey. When over Sheerness he was at an altitude of quite 2,000 feet, and some remarkable evolutions were part of his work in the Medway, over the battleship "Implacable."

On his return, in passing over the village of Eastchurch, his altitude was estimated at about 4,000 feet, and then descending to a lower altitude again crossed the Swale, flying towards Sittingbourne, over which town he probably passed, although owing to the thick haze below him it was difficult for him to judge the actual locality over which he was flying. Returning from thence to Sheppey, he kept to the south-east of Leysdown, then making for Eastchurch, carrying out a series of skilful curves in the air, and finally shutting off his Gnome engine and planing down from about 2,000 feet. Restarting the engine at a fair height, he again flew for a short distance and repeated the manoeuvre, finally descending on to the flying ground with a perfect landing, after a flight of 1 hr. 7 mins.

On the following day Mr. Grace was again up, and attained even a higher altitude, reaching at least 4,500 ft. He confined his trip this time to circling round the island of Sheppey, steering somewhat out to sea, and when over the water at about the highest point he shut off the petrol altogether and planed down towards Eastchurch, restarting his engine at about 300 ft. from the ground and landing in his characteristically graceful manner. Altogether for this second flight he was up about 40 mins.

AEROPLANES AND THE SAHARA DESERT.

FROM the first it has been quite evident that one direction in which enormous advantages will probably accrue from the perfecting of aerial craft was in the traversing of regions of the Sahara Desert type, and stretches of water which otherwise mean a detour of hundreds of miles to reach the other side, although only a few miles distant. In this respect all honour is due to the French nation for the manner in which the Government and its officials have been and are still encouraging in every way the advance of both the aeroplane and the dirigible for State purposes and revolutionary advances such as those in question. Already for a year past the Ligue Nationale Aérienne have been working with the support of the French Minister of War, the Minister of Public Works, and the Governor-General of Algeria, with a view to establishing a cross-desert service of air-craft between Colomb-Béchar, the terminus station on the South Oran Railway, and Timbuctoo, which will reduce what is at present a four months' journey to a matter of 24 hours—in fact the estimated time is considerably less than this—an achievement which, although 1,600 kiloms. apart between the two suggested points, is quite a feasible possibility, however absurd it may appear to many at the present moment. The idea is to establish relay depôts where petrol stores and other necessities will be kept to enable the various craft, whether they be dirigibles or aeroplanes, to accomplish this cross-country journey in easy stages. Preliminary investigation has shown that the difficulties to be overcome are not of a character to suggest failure, and General Roques, of the War Ministry, confirms the intentions of the Government. Already General Bailloud, of the 19th Corps, has been instructed to proceed with the necessary surveys, and to select the most suitable sites for the depôts en route. Officers in the Colonial Army will be specially selected for this work, and a training station established in the province of Oran, Lieut. Fequant, the brother of the very successful Army aviator, being one of these. In arranging for the route it is proposed to start from both ends and meet more or less at the centre. It is hoped then to establish regular trans-Sahara flights, placing Algeria in direct communication with the French African central possessions. The whole scheme is primarily a military one, although it will be open to enormous commercial developments in addition. So sanguine are the promoters of the undertaking that as early as January next is mentioned as a possible time to attempt cross-desert flights.



THE NEW GNOME ENGINE.—The accompanying illustration shows the new Gnome engine with mechanically operated valves. It does not, as will be observed, show very much detail, and the makers, in writing to us on the subject, express their disinclination to divulge many particulars at the moment, confining themselves to a statement to the effect that they have been able to obtain more power for the same engine dimensions.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Committee Meeting.

A MEETING of the Committee was held on Tuesday, the 6th September, when there were present:—Prof. A. K. Huntington (in the Chair), Mr. Griffith Brewer, Mr. F. K. McClean, Mr. C. F. Pollock, Sir Charles D. Rose, Bart., Mr. Stanley Spooner, and Harold E. Perrin, Secretary.

New Members.

The following new members were elected:—
Anthony Joseph Drexel, junr. Captain Wilmot Nicholson,
John Howard. R.N.
Erhard Cecil Kny. Bertrand Stewart.
Viscount Maidstone. George Scott Wilson.

Aviators' Certificates.—Mr. A. E. George, of Newcastle-on-Tyne, was granted an Aviator's Certificate. Mr. George has been at the Club's Flying Grounds at Eastchurch for a few months, and the machine on which the tests were made was constructed by himself.

The request of the Aero Club de France to grant Certificates to H. G. Melly, H. J. Harding, and Ernest Archer was sanctioned.

Gordon-Bennett Aviation Cup.—The International contest for the Gordon-Bennett Aviation Cup will take place at Belmont Park, New York, on October 29th, 1910. Mr. Alec Ogilvie, who is now in the United States, has been selected as the third representative of the Royal Aero Club.

In a recent letter to the Royal Aero Club, Mr. Cortlandt F. Bishop, President of the Aero Club of America, states:—

"The Wright Company has given guarantees that no obstacle will be brought in the way of foreign competitors, and no proceedings will be taken against them during the different events of the Meeting. The Gordon-Bennett Aviation Cup Race is included in this arrangement."

"In addition to the International Race there will be prizes amounting to £10,000, and the aviators will take 70 per cent. of the profits up to £20,000, and 40 per cent. of all sums above this amount."

Committee.—Col. Henry C. L. Holden, R.A., and Mr. Cecil S. Grace were unanimously elected to fill the vacancies on the Committee.

Paris to London Flight.—The news of Mr. Moisant's arrival at the Crystal Palace reached the Committee during their meeting, and a telegram of congratulation was immediately despatched, Mr. Moisant being unanimously elected an honorary member of the Club during his stay in England.

Eastchurch Flying Ground.

Shed Accommodation.—The two sheds belonging to the Royal Aero Club have now been removed from Shellbeach to Eastchurch and are available for members. Full particulars can be had on application to the Secretary.

Railway Arrangements.—The following reduced fares have been arranged with the railway company for members visiting Eastchurch:—

1st Class return, 8s.; 2nd Class, 6s. 6d.; 3rd Class, 5s.

Tickets available for one month from date of issue.

Members desiring to avail themselves of these reduced fares are required to produce vouchers at the booking offices. Vouchers can be obtained from the Secretary of the Royal Aero Club. Trains leave Victoria, Holborn, or St. Paul's.

Rolls Memorial Fund.

Members who have not yet sent in their contributions to the above Fund are requested to do so as early as possible. By limiting individual subscriptions to the sum of 10s. the Committee hope they will receive the support of all members.

It has been decided that the Memorial shall take the form of a bas-relief plaque, and that any surplus over and above the cost

of the Memorial shall be devoted to the establishment of an **Aeronautical Library** at the Royal Aero Club, to be called the "**Rolls Memorial Library**."

Contributions of books to the "**Rolls Memorial Library**" will also be greatly appreciated.

A list of subscriptions received up to August 31st was published in the last issue, and the following members have since contributed 10s. each up to September 7th:—

Capt. C. G. Astell.	F. Shaw Kennedy.
Sir H. B. Bacon, Bart.	Granville M. Kenyon.
Major B. Baden-Powell.	Capt. W. A. de C. King, R.E.
George S. Barwick.	Lord Kinnaird.
Henry B. Birnbaum.	Reginald Laurence.
L. Blériot.	V. Le Cren.
David C. Bolton.	W. J. S. Lockyer.
Francis A. Bolton.	Capt. E. M. Maitland.
Leonard H. Bonnard.	Lieut. W. P. Mark-Wardlaw,
Lady Bowen.	R.N.
H. C. Brocklehurst.	J. Miller.
Paul Brodtmann.	M. S. Napier.
H. Massac Buist.	Vice-Admiral Sir George
J. Cadman.	Neville, K.C.B.
Wilson Carr.	Capt. C. J. Newton.
Norbert A. Chereau.	Percy W. Northey.
Arthur C. Churchman.	William N. Parker.
G. B. Cockburn.	Louis Paulhan.
Archibald A. Crawford.	Lieut.-Col. H. de T. Phillips,
Walter C. Crawshaw.	R.G.A.
E. A. Crossley.	C. F. Pollock.
P. C. Culver.	Philip E. Pope.
W. G. Cuthbert-Gundry.	Lt. Robert H. Raikes, R.N.
Martin Dale.	J. F. Ramsden.
H. R. Davies.	Mrs. Ramsden.
H. Deutsch (de la Meurthe).	Hugh Reid.
E. W. Dixon.	Renault Frères, Ltd.
J. A. Drexel.	Mr. and Mrs. Charles Rey.
A. Duckham.	Noel W. Richardson.
Earl of Dundonald.	Percy Richardson.
Lady Dunne.	Sir Frederick Ricketts, Bart.
Miss Dunne.	W. D. Roberts.
J. W. Dunne.	G. N. Rouse.
Kenelm Edgcumbe.	Sydney Schiff.
Charles E. Evans.	John A. Sillars.
Harold Bulmer Everett.	Maurice Silverston.
H. Farman.	W. M. G. Singer.
Chester Fox.	Marquis of Stafford.
W. Frecheville.	Stern Sonneborn Oil Co., Ltd.
Admiral Hon. Sir Edmund	Capt. Murray F. Sueter, R.N.
Freemantle, G.C.B., C.M.G.	Lt. M. B. Talbot-Crosbie, R.A.
Edward P. Frost.	S. M. Townsend.
G. C. Garrick.	J. L. Travers, Junr.
Sir W. Goff.	Cecil F. H. Twining.
Hon. A. E. Guinness.	Herbert H. Twining.
Hon. Mrs. Assheton Harbord.	Baron Herbert von Pohl.
W. Harbrow.	Edward Wahab.
F. R. Harford.	W. Wallach.
J. S. Henry.	J. D. Wardrop.
T. H. Hewitt.	Lt. F. C. Westland, R.N.
H. Hirst.	Joseph Wilkinson.
J. A. Holder.	J. E. Withers.
Mrs. Croxton Johnson.	

HAROLD E. PERRIN,
Secretary.

166, Piccadilly.

PROGRESS OF FLIGHT

Birmingham Aero Club (165, HAMPTON STREET).

THERE will be a competition for models on September 17th; the chief event will be the Amateur Championship of the Midlands, 1910.

Bought models will not be admissible for this event. For the middle of October efforts are being made to arrange a highly sensational competition for which there will be a substantial cash prize.

Particulars will appear later.

ABOUT THE COUNTRY.

Oldham Aero Club (GARFITT STREET, OLDHAM).

THE prizes for the Oldham Aero Club's model flying competition were presented by Mr. W. Brown, one of the club's vice-presidents, on Thursday, August 25th. Mr. Fleet, Mr. Dean, Mr. Partington, Mr. Whittaker (Leeds), and Mr. Braithwaite (Leeds) were the principal prize-winners. Mr. W. Brown, after presenting the prizes, made the club a generous offer of a 25-guinea cup for the first member to leave the ground and fly a circular course. The cup is to be held for twelve months only, but can be won again.

FOREIGN AVIATION NEWS.

Mlle. Helene Dutrieu Makes a Cross-Country Flight.

Mlle. DUTRIEU on Friday of last week put up a new aviation record by a flight with a passenger across country. Starting on her Henry Farman machine early in the morning from Blankenberghe, the aviatrix reached Bruges at 6.30 a.m., and after circling round the ancient Cathedral towers, returned without alighting to her point of departure. It will be remembered that we gave a portrait of Mlle. Dutrieu in our issue of January 8th last.

Cross-Country Passenger Record.

M. LOUIS BREGUET on the 2nd inst. made a record flight from Douai to Arras and back, a distance of about 40 kil., taking with him Capt. Madiot as passenger. Twenty-six minutes were occupied in the double journey, giving an average speed of about 55½ m.p.h., a record with a passenger.

Across the Alps by Aeroplane.

M. CHAVEZ, who has been prospecting over the Simplon Pass with a view to participating in the race across the Alps finishing at Milan, states that there should be no difficulty about carrying out such a flight, and by way of practising what he preaches, has, it is stated, made up his mind to have a try to win the £4,000 prize offered by the Milan Aero Club for the trip.

Vitry Meeting.

IN connection with the meeting at Vitry le Francois, on September 18th and 19th, the chief item on the programme is a flight from Mourmelon to Vitry, about 50 kiloms., the descent to be made on the aviation grounds. The prizes are 3,000 fr., 1,000 fr., and 500 fr., for 1st, 2nd and 3rd respectively.

A Cup for Crossing the Pyrenees.

INSPIRED, no doubt, by the proposed contest for crossing the Alps by aeroplane, the Aero Club of Berne have decided to organise a similar contest for crossing the Pyrenees. The Cup is to be awarded to the first aviator who shall fly over the range of mountains separating Spain from France, subject to detailed regulations which are to be issued.

A "South-East" Circuit.

EMULATING the example of the recent Circuit de l'Est, a similar contest is proposed for the south-east of France next spring, embracing a circuit touching Biarritz, Pau, Toulouse, Agen,

Bordeaux and Biarritz, the various aero clubs of this district acting in combination for the success of the scheme. It will be an international event, and will include a race for passenger-carrying machines as well as a speed test. A race for dirigibles between Bordeaux and Pau is also to be part of the programme. Already it is stated several entries have been received, including Tabuteau with a Maurice Farman, Chateau with a Tellier, and Granel with a Blériot.

Instruments for Flyers.

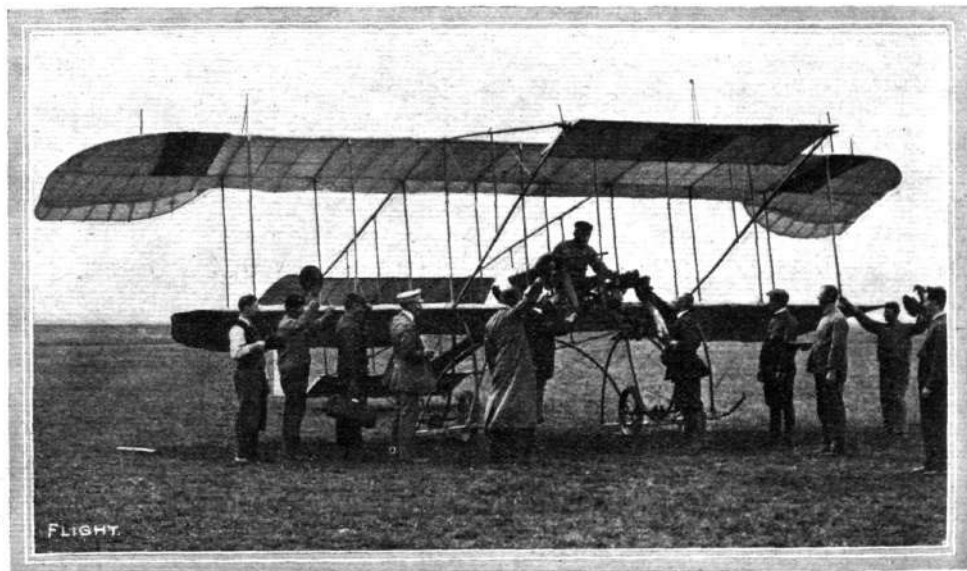
BY degrees helpful instruments will be evolved for aviators as their usefulness and necessity becomes apparent. What appears to be one of the most practical is a spirit-level, the use of which has been advocated in FLIGHT for some time. M. Bregé, at Mourmelon last week, found an instrument of this nature of practical value to him when making high flights. Having ascended to about 4,500 ft., and being entirely enveloped in clouds so thick that he was unable even to see his elevating planes, he found it very difficult to know whether he was following a horizontal line or not. Having a level on his machine, however, he was able to watch against the danger of too vertical a descent, until he managed to get clear of his cloudy surroundings, and he now declares that this instrument will always form part of his equipment whenever flying.

The French Navy and Aeronautics.

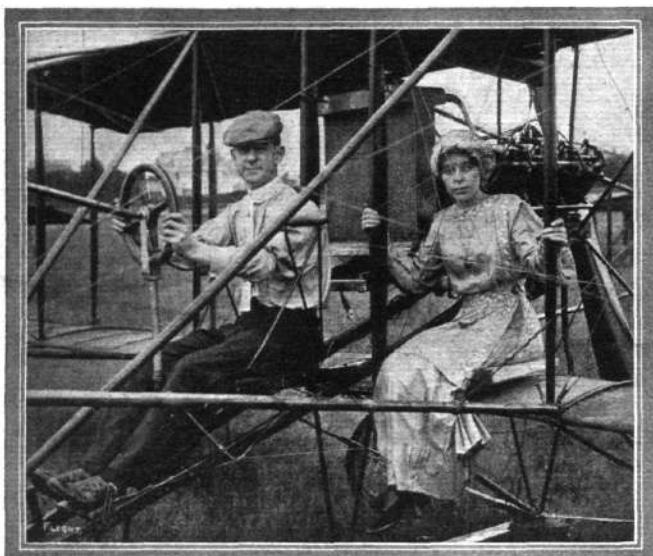
PRACTICAL work is commencing in connection with the proposed utilisation of air-craft by the French Navy, and the Naval Minister has now definitely selected the abandoned docks of Mourillon as a training station for a start. Mons. Mercier, the aeronautical engineer, has been despatched from Chalais-Meudon to take charge of the preparations for rendering the ground suitable for the necessary experiments. The greatest facilities are to be made for the landing of aeroplanes, and this marine aero-station is to be equipped permanently with at least one airship.

Doings at Bouy.

HENRY FARMAN School.—Pupils are multiplying very rapidly here, the majority acquiring the art with evident ease. On the 1st, Farman was out trying a new machine, and Sido accompanied by Capt. Marie was experimenting with the delivery of despatches whilst flying. The next day Lieut. Remy flew over the military camp for 70 minutes, in the meantime taking notes of the movements of the troops below. Again on Saturday the air was alive with military flyers, in addition to the private pupils. Capt. Marie



Warchalonski in his special type biplane after his fine flight from Wiener-Neustadt to Vienna, on the day of the Emperor of Austria's birthday.



Mars, who on his Curtiss machine has been making good flights in America, amongst other trips, flying from Coney Island to Staten Island, and his wife.

flew from Bouy to Chalons and back; Lieut. Sido was up for an hour in the morning and half an hour longer in the evening; and Menard was carrying Sergeant Marxer and Lombardi for about 2½ hours. Loygorri went out for a 20 kilom. spin, taking with him Mery, the artist, and afterwards carrying a lady as passenger.

Progress at Mourmelon.

CONTINUOUS work is going forward at the Antoinette school, where Chief Pilot Laffont has his hands pretty full. A short flight across country to Bouy and Vadenay was indulged in on the 1st, and later in the day Comte de Robillard went up as a passenger. The next day no less than twenty-two pupils were being instructed, their flights totalling to 4½ hrs. In the afternoon Comte Robillard flew for 45 mins. over the country, whilst several promising pupils made short essays of 15 mins. each. On Friday Mlle. Marvingt was a passenger with Laffont, Robillard flying for 1 hr. 10 mins. across country.

On Sunday Mlle. Marvingt was out alone, making a good trip of 10 mins., followed by a graceful landing.

At the Voisin school on Sunday, Delange, who is entered for the

Vitry meeting, was flying over Bouy for 45 mins., and Schulz was up for 30 mins.

Lieut. Girard, on a Sommer, was flying last week across country for over an hour.

Mme. Niel at the Koechlin school was on Thursday in the air for 20 mins., and Koechlin carried as passengers Lieut. Joly and Frantz.

At Etampes.

IN like manner to Bouy, military pilots are increasing at the Henry Farman school, amongst those making rapid progress being Lieut. Bousquet and Capt. Marquazi.

At the Blériot school Blanchard last week made a cross-country trip across Etampes, but had to descend at Pilhivers, owing to the darkness coming on. On Thursday Blanchard successfully got through his two last pilot tests, Kousminsky the next day also passing. Altogether sixteen pilots have been passed at this school in the month.

Pupils at the Tellier school include the Prince of Nissolle, who is making good progress, Le Maire, Santoni, and Hammersley. Emile Dubonnet paid the school a visit on Thursday, and executed some cross-country trips.

A Good Flight in Holland.

USING a Blériot, Ladis Lewkowicz, on Tuesday last week, made a flight at Breda of 40 mins. at a height of 120 metres.

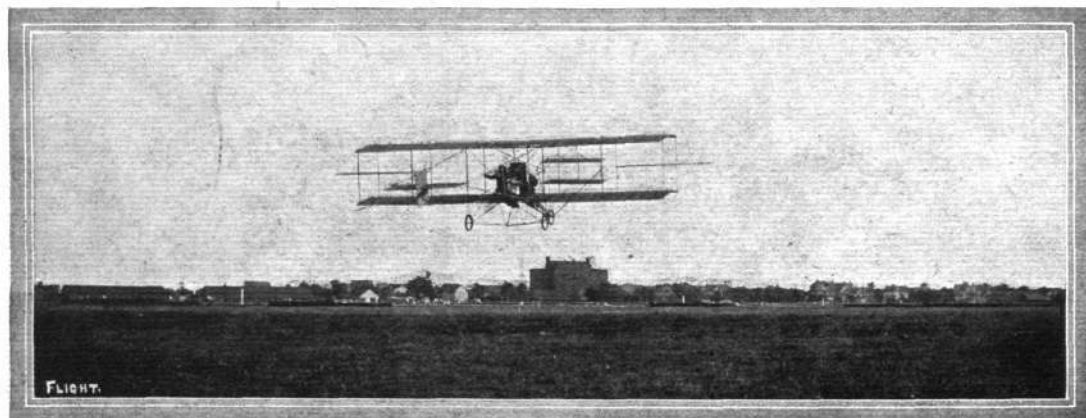
Maurice Farman at Buc.

AGAIN at Maurice Farman's flying grounds the same tale is repeated of military pupils all in more or less advanced stages of tuition, so that within a very short time the number of French Army flyers will be exceedingly formidable. On Friday, last week, General Bailloud, commanding the 19th Corps, visited the school at Buc, and under the pilotage of Renaux experienced his first aerial flight, finishing with a *vol plane*. His opinion of the aeroplane for observations was markedly favourable. Lieut. Blassou then gave an exhibition flight, after which Maurice Farman was up for half an hour with Lieut. Chieutin, whilst Renaux took up Lieut. Binda.

Revised Rules for Pilote-Aviateur Certificates.

AT their last meeting the Aviation Committee of the Aero Club of France revised their regulations in regard to the granting of pilote-aviateur certificates. The present clauses 2 and 3 are replaced by the following requirements:—

Article 2. In order to ensure the presence of the responsible officials, the applicant must notify the President of the Aviation Commission, giving him the following information:—Full name, address, nationality, place and date of birth, names of two official Commissaires proposed to act, and the exact spot where it is proposed



AEROPLANES FOR MILITARY SCOUTING.—Glenn Curtiss on his biplane with Lieut. Fickle, of Governor's Island, U.S.A., target practising with a rifle from the machine while in flight.

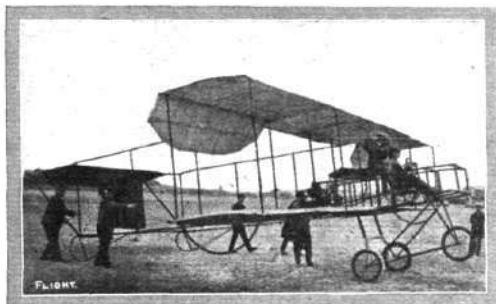
the tests should take place. After receiving official acknowledgment of the application, the authority to have the tests made will hold good for 30 days.

Article 3. After having gone through the necessary tests the applicant must send to the Aviation Commission a formal demand for a full certificate, accompanied by three identical photographs of himself. This application must be countersigned by a member of the Aviation Commission or by two certificated pilot aviators. The Chief Commissaire will then submit to the secretary of the Aviation Commission the necessary proofs of the accomplishment of the three necessary tests, duly signed by the responsible Commissaire and at least two other Commissaires, the Aviation Commission reserving the right to grant or refuse the certificate without assigning any reason.

These new regulations come in force to-day, September 10th.

A Passenger Prize.

A PRIZE of 1,000 fr. is offered by the *Petite Gironde*, through the L.N.A., for the pilot who, starting from anywhere in the



Bielovucic's new Voisin biplane without front elevating planes. The extreme "nose" of the machine, which is pointed, is not in place in our photograph.

Department of the Gironde, flies 30 kiloms. in a straight line, carrying with him a passenger.

Capt. Engelhardt at Johannisthal.

FLYING on a Wright biplane Capt. Engelhardt on Monday last made a cross country journey, passing over Rudow, Lichtenrade and Glienicke at a height of 400 metres. The trip lasted 20 mins., the distance being about 18 kiloms.

Ollieslaegers flies at Ostende.

STARTING from Ostende on Friday last week, Ollieslaegers made a coast voyage to Nieuport and back, his time being 39 mins. 24 secs.

A Pullman Car by Wright Brothers.

PASSENGER carrying machines are now being seriously developed. Following on the announcement that Blériot is con-

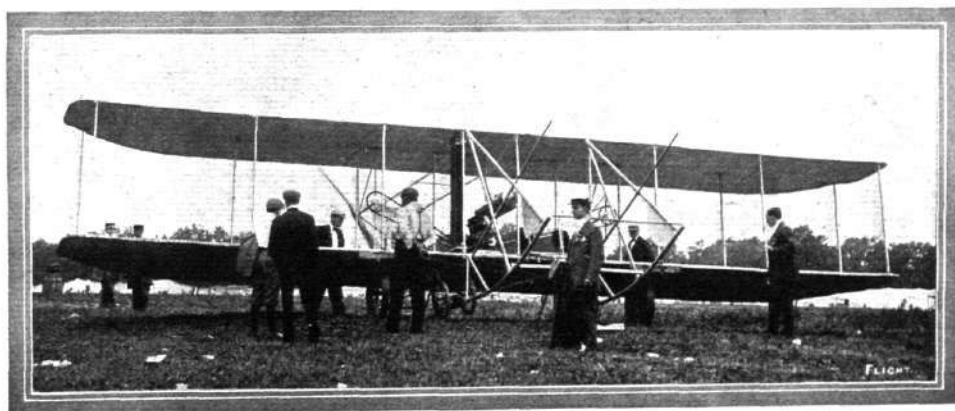


Attitude in vogue at Philadelphia Flight Meeting for watching Hamilton and others' altitude efforts.—*American Aeronautics*.

structing a four-seated monoplane, comes the statement that Orville Wright has designed a five-seated machine, with which it is hoped extended trials will be made shortly.

Curtiss Flies Across Lake Erie.

A DARING and successful flight, cabled from America, is that made by Glenn Curtiss, who incidentally by a flight from Euclid Beach to Cedar Point and back, a total distance of 120 miles, won a prize of £2,800 offered for the first aviator to accomplish the journey across Lake Erie. Starting from Euclid Beach on Wednesday of last week, he reached Cedar Point in an hour and 19 minutes for the 60 miles. The next day, on September 1st, he made the return journey, starting at 2.47 p.m. and arriving at Euclid Beach at 4.29 p.m., giving 1 hr. 42 mins. for the same distance, the difference being accounted for by his having a 12-mile wind with him during the outward journey. This establishes a new record for a direct flight across water.



New Wright machine without elevating plane.

PARIS-BORDEAUX.



Bielovucic, who has just flown from Paris to Bordeaux, at the wheel of his Voisin biplane.

TRULY rapid fame, almost unequalled in the annals of the world, is being attained by means of aviation. Day by day some new flyer whose name has hardly appeared in print, becomes one of the leading lights of the universe by reason of some extraordinary feat, either novel in itself or surpassing previous exploits of a similar character. In this category must almost be included Bielovucic, for although he has been known in certain circles in the flying world, until the last few weeks his name was practically unknown to the general public. And yet, with little preliminary fuss last week,

and mainly in order to avoid the very heavy expense entailed in transporting his Voisin machine to Bordeaux from Paris, where he proposes to fly at the big aviation meeting, he determined to take the air for the entire journey, merely descending for necessary replenishment stops and rest. Without a suspicion of serious delay he has succeeded magnificently, and once more the tablets of history must receive an addition by the inscription of his name for this fine work. The total distance between the two points is 540 kiloms., and this Bielovucic covered in three successive days with three landings, in the total flying time of 6 hrs. 15 mins. The longest stage was between Orleans and Chatellerault, this totalling to 170 kiloms., the shortest being the first stage, starting from Issy, between Paris and Orleans, with 110 kiloms. The various stages, with times, are as follows:—

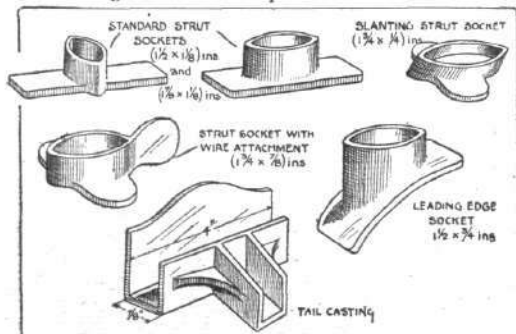
	kiloms.	Start.	Arrival.	Time.
				h. m.
Paris-Orleans ...	110	6.5	7.15	1 10
Orleans-Chatellerault ...	170	9.35	11.20	1 45
Chatellerault-Angoulême ...	135	3.30	5.15	1 45
Angoulême-Bordeaux ...	125	10.48	12.25	1 37

Total for the 540 kiloms. ... 6 15

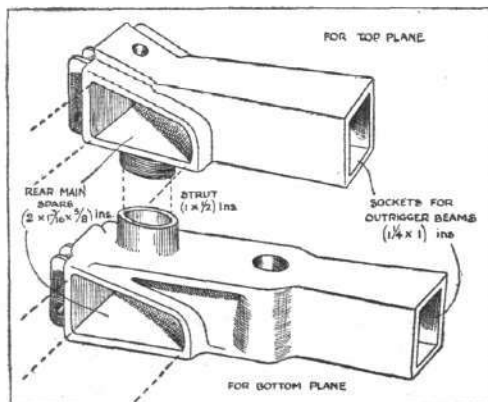
In the first stage he travelled over Montrouge, D'Arpajon and Etampes, before alighting at Orleans. Rising from the military field of manoeuvres at Grouves before actually making a start for the second stage, Bielovucic made a trip round the plain four times in spite of a very bad fog prevailing at the time. Later, when the sun had dissipated the thick mist at 9.35, he rose from the ground for his second stage. During this journey the route took him over Blois and Tours, he passing over the latter town at three minutes past eleven, and at 11.20 he descended at Chatellerault for *déjeuner*. Restarting at 3.30, he was speeding over Poitiers at 3.45, Couhé-Verac at 4.10, and descended at Angoulême for the night at 5.15. The next morning the completion of the journey to Bordeaux was successfully accomplished with a start at 10.48, he was sighted over Libourne at 12 noon, where he had to rise to about 1,000 metres in consequence of some violent wind eddies met with. Bordeaux was reached at 12.25, although Bielovucic did not actually finish his journey at the Beau Desert Aerodrome until 10 minutes later, during which interval he passed over the Cathedral at a height of 1,600 ft., and the Grand Theatre, where the streets were positively black with the populace who had sallied forth *en masse* to welcome the popular aviator. And so, what will presently become hardly a matter for unusual comment, this further remarkable step in the history of aviation ended, with the material reward to the hero of a gold medal which is to be presented to him by the Bordeaux Departmental Assembly in recognition of the first man to fly from Paris to Bordeaux. As a preliminary to the Bordeaux aviation meeting, the promoters have assuredly reaped a magnificent advertisement for their project, which starts on Sunday next.

SOME LUGS AND SOCKETS BY HANDLEY PAGE, LTD.

As there is practically no end to the various shapes and sizes of aluminium lugs and sockets required in the construction of



Some of the standard type aluminium lugs and sockets supplied by Handley Page, Ltd.



Two special compound castings for carrying the outrigger beams and the main spars of a biplane.

aeroplanes, it would be impossible for any firm to stock a complete set. There are some, however, that have become standard fittings, being largely used on most types of machines, and the accompanying sketches show a few of the lugs and sockets of this description that are made by Handley Page, Ltd.

These consist of the standard oval strut sockets, one type having a wire attachment, and another a special base that fits the curvature

of the leading edge of the plane. Two compound castings, suitable for biplanes, for carrying the outrigger booms and the main spars are shown in our second illustration.

Any other kind of aluminium casting can, of course, be supplied by the above firm to order, as well as a very large assortment of other aeroplane fittings, such as wire strainers, wire clamps, eye-bolts, and hexagon bolts and nuts.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents communicating with regard to letters which they have read in FLIGHT, would much facilitate ready reference by quoting the number of each letter.

NOTE.—Owing to the great mass of valuable and interesting correspondence which we receive, immediate publication is impossible, but each letter will appear practically in sequence and at the earliest possible moment.

ROTARY ENGINES AND ASPECT RATIO.

[736] May I make a suggestion concerning a point made by the "Dreadnought" Co., when they were pointing out what were the weak points in the "Gnome" engine which they did not possess?

They said that the inlet-valves were seriously banged about by the reciprocating action of the piston. Now as the pistons revolve about the big-end, simply describing a circle, eccentric to that of the cylinders, where does the reciprocating motion come in? They must, therefore, be in just as advantageous a position as the valves of the "Dreadnought." The only difference is that they are not quite so easily got at and they get a continuous bath in castor oil.

However, they appear to be the least reliable portion of an extremely reliable motor, as Mr. Moisant recently suffered from trouble with his inlet-valves, and I can call to mind at least one occasion of a forced descent by Mr. Grahame-White from valve trouble.

In your recent articles, on "Can we Fly Faster for Less Power?" no mention was made on the effect of aspect ratio.

In bird-land, as a rule, the larger the bird the larger the aspect ratio. Similarly, all long-flighted birds have large aspect ratios, so have all soaring birds. It appears, when looking at Mr. Lanchester's tables, that this is extremely important.

In a recent article on the results of the Rheims meeting, you state something to the effect:—"That there should be no reason why biplanes should not be made as fast as monoplanes, and monoplanes as stable as biplanes." Surely after the marvellous performances at that very meeting of the Antoinettes in gales, where only one biplane (on the occasion of the President's visit) dared to ascend to the imminent peril of the aviator, and a host of other proofs of steadiness and stability by other Antoinettes, nobody can say that the biplane is more stable than the monoplane?

The only advantages at present of the biplane are:—The position of the propeller and the unhindered vision of the aviator.

W. Kensington.

A. P. MOUND.

[Aspect ratio was ignored in the article in question in order to avoid confusion by reference to a number of side issues. The practical limitations of aspect ratio are rather narrow with present methods of construction, so that it is sufficient for the moment to say that it should be as high as it can conveniently be made.—ED.]

CONTROL OF AEROPLANES.

[737] May I make a few remarks concerning Sir Richard Paget's most interesting article on the direct action and reaction control of aeroplanes.

Starting from the fact that a man's instinctive aim is to keep his body upright, both systems may be regarded as following automatic action, if we assume that:—

In the direct system the operator, by suitably pressing on fixed parts of the machine, and by exercising the muscles of his legs or body, keeps himself vertical, the lever moving with his body, the arms being kept approximately rigid.

In the reaction system the vertical position of the body is retained largely or totally by using the arms against the control lever, the leg and body muscles doing little or no work in balancing.

These assumptions are, no doubt, more or less correct. If so, and if we consider how the natural method of retaining our equilibrium is by the muscles of the legs (when walking) and the body (chiefly when sitting down), except in abnormal circumstances, such as in climbing trees or in a canoe (when the legs are usually helpless), in which cases the arms are used, then the direct system

would seem to have the advantage as being more natural and less tiring to the arms.

I do not know how great the force required to balance an aeroplane is compared to that required for the equilibrium of the body, but this is a very vital point. If it is comparatively small the direct control might be best for the above reasons, but if large the operator would have much less work to do in the reaction system where, with one effort equal to that for his own equilibrium, and divided between his body and arms, he can both keep upright and balance the machine, instead of having to exert a force equal to that required for his own equilibrium and the machine's added together as in the direct system. But, again, if the force for the machine's balance were greater than for his own, the reaction system would make him help the lever over by using his body in a reverse way to that which his instincts tell him, so as to provide a reaction for the pressure.

The Farman control seems the easiest yet invented, from the results obtained; but though it is direct, if the aviator places his free hand on a strut, he can use that arm in a reaction sense. The reaction foot-steering is natural to the leg muscles; but the rudder should be thought out in connection with warping in righting a cant; for turning corners is only a phase of normal flight, and is seldom aimed at in an emergency. For steering in curves by a hand-wheel, however, the direct system is more natural, as the pilot has always a sense of being able to push the flyer round. When a man is wheeling a barrow round a corner he pushes it round with his hands (direct action) and himself round with his feet (reaction), showing again the instinctive actions in the two sets of members.

The cause of a Blériot pilot's drawing his lever back when the engine stops, I should think, was caused by him trying to keep the machine level when it dips, owing to its slower speed (this must occur when the angle of incidence of the tail is less than of the wings), and the man would probably try to do this unconsciously whatever control system he had.

Wimbledon.

B. BRUCE-WALKER.

MISS LILIAN BLAND FLIES.

[738] I have flown! All this time I have been learning my engine and getting things shipshape. Then for five weeks we had fearful weather, and are having it still, gales and rain. One day I had her out; the skids were wrong, more alterations, and at last, on Wednesday, I got her out again, and she rose in 30 ft., which I carefully measured. As the grass was soaking wet it was easy to see where the wheels left the ground. It was a dead calm, so there was no wind to help her. The quaintest thing was I did not know I was off the ground! I was only a few feet up, and was intent on the engine and levers, and I could not believe it till I went back to trace the wheels.

She rose again quickly to-day, but there was a bit of side wind, and she rolled and pitched exactly like a boat; fortunately, I am a good sailor! The extraordinary thing is that she rises when she is going quite slowly. However, to-day I buckled a wheel, which means delay, and there are other details which will have to be altered. The Avro engine is splendid, although I frequently have fights with it to get it to start, it has never yet stopped unless I stop it on purpose. It is, of course, air-cooled, but I ran it for 30 mins. the other day with the wheels blocked, and it did not overheat.

I am changing my flying ground also; the cattle, &c., are a bother, as instead of running away, they charge up to the engine and get in the way. The "Mayfly" is evidently going to behave as she did as a glider, when she always rose at once and was difficult to keep on the ground, however, I think all credit is due to the engine, which pulls like a Trojan, or rather pushes. My Avro engine gives 20-h.p. at 1,000.

I always start her on one cylinder, and let her pick up slowly, as I think it is less strain on the engine, but I have it now in perfect control, and can go as slow or fast as I want to, which means four engine controls, however, it is really quite simple; she is also very economical in petrol. The propeller is also excellent, and I am

using it at a 3 ft. pitch. I am naturally awfully pleased, having made and designed her myself. It is a very small, but promising start anyway.

Carmony, Belfast.

LILIAN E. BLAND.

[* Why not now "Has flown"?—ED.]

J. RADLEY'S FLYING.

[739] The answer to Mr. E. R. Whitehouse's note of inquiry is in the negative. Far from considering that J. Radley has "been for some time in the front rank of monoplane flyers," I could not conscientiously hold him to have achieved any such position even to-day. He has become a good monoplane flyer, especially in the time at his disposal, but Mr. Whitehouse's experience of aeroplanists in action must be limited indeed if he would rank this promising beginner with the most finished pilots of the strengthened cross-Channel type Blériot monoplanes such as Radley has lately been using. In these, as in other matters, proficiency can be judged by comparison only. The most proficient men of any given period can alone occupy the front rank in any special calling.

H. MASSAC BUIST.

ROTARY ENGINES.

[740] Replying to letter No. 725, published in last week's FLIGHT from the Dreadnought Rotary Engine Syndicate, I quite agree that it is not a *new* rotary, as it is eight years since I protected this system, which has certainly taken some of the newness off it.

With regard to the separating of the fuel from the lubricant, I do not mix them, nor have I ever done so.

The Empress Rotary is an absolute fact. The anticipations have been realised, and it is built on practical lines.

The guess made at the diameter of the engine by the Dreadnought Syndicate is a very bad one, they are just over half a yard out—the diameter is under 3 ft. With regard to the difficulty in the manufacture of the cylinders this is quite simple to practical engineers, and the little difficulties which they state do not exist. "Why" I put holes in the cylinder walls is best known to myself.

I am pleased to note that the photo of the Empress Rotary has done good, this being my sole object in making it public, and I thank them for their compliments. I also thank them for their kind offer of assistance, and I shall be pleased to hear in what form their offer of assistance is suggested.

C. A. FLETCHER.

[741] The letters from "The Dreadnought Rotary Engine Syndicate" get more and more interesting as the time approaches when they will have to make some definite statements about their novel design.

It would appear from letter No. 725, in last week's issue of your interesting journal, that the Syndicate imply that they have some patent rights in connection with rotary engine manufacture, and the writer of the letter suggests very plainly that the makers of the newly advertised "Empress" engine may be making an infringement. Mr. Fletcher, on the other hand, claims that he has been developing the rotary engine for the last eight years, and it follows that the Dreadnought people must have some prior patents to when Mr. Fletcher commenced his work.

Why does not Mr. Bett publish the dates of his patents upon which the novelties in his design are based? This would not in any way invalidate any rights which might be attached to his claims. If he is unable or unwilling to do this, then I shall certainly come to the conclusion that so far as patent rights are concerned the Dreadnought engine is no better off than any other rotary engine.

It is quite possible that Mr. Betts may have got some capable engineer to design him a thoroughly reliable and economical rotary engine, and I wish him every success with it, but I cannot understand all this talk about patent rights in connection with a design which is quite old in general principles, and of which numbers of experimental engines have been made from time to time.

CYLINDER.

ANTOINETTE FRONT SKID.

[742] With regard to your information re "Antoinette front skid," by "Oiseau," I would like to point out to you the little history attached to same. The sketch referred to was, no doubt, taken from Kuller's machine at Lanark. As you already know, his proper machine, together with Chavez's, were burnt in transit, and Kuller, having one pair of spare wings and a complete "fuselage," but no landing chassis (these parts were not burnt, they not being on the same train as the complete machine) he resolved to try and build up a machine for the Lanark Meeting. There were two things wanted; they were the engine, which was sent from E.N.V.'s immediately, without being tested owing to its urgency, and a landing chassis. This latter had to be put up mostly by his

mechanics, after they had searched all over the aerodrome sheds for wheels and wood to answer their requirements. Naturally, the whole outfit was only a makeshift, and as "Oiseau" states is not the actual chassis of the standard machine. Hoping this will explain matters.

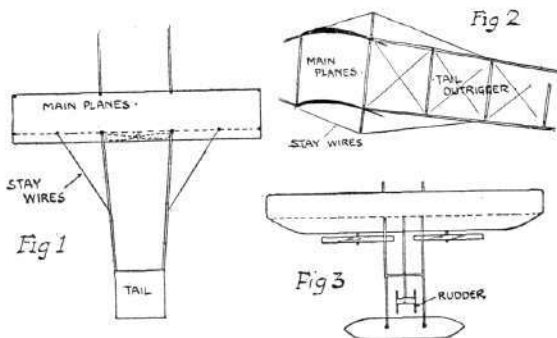
Brondesbury.

HAROLD SOLOMON.

STRENGTH OF TAILS.

[743] With reference to the lamentable accident to the late Hon. C. S. Rolls at Bournemouth, I notice on p. 547 of a recent issue of FLIGHT a theory as to the cause of the accident, advanced by Mr. Horace Short, which will, I think, commend itself to many as the most probable cause of the disaster.

It occurs to me that any tailed biplanes of the type that are now so successful are peculiarly liable to a repetition of such an event, and that such "sideways buckling" of the outrigger spars could be obviated by suitably staying them to the rear spars of the main planes. Fig. 1 will explain my meaning, so far as lateral motion of the tail is concerned. To prevent any vertical or up-and-down motion of the tail, might I suggest that two of the rear struts



between the main planes might be extended, as shown in Fig. 2, and stay-wires taken from the extremities of same to the tail outrigger-spars, and also to two of the front struts?

I am not aware from what sketches and photographs of tailed machines I have seen that this staying of the tail spars is resorted to, but I think you will agree that the adoption of such a precaution would obviate the danger of accidents from the buckling of tail spars. Further, the addition of the parts suggested would offer but very little extra head resistance to the machine in flight.

With many thanks for much valuable information gathered from the pages of FLIGHT.

FRED. T. HAWKEY.

[Our correspondent's first suggestion (Fig. 1) is already standard practice on all the machines mentioned. (See scale drawings, FLIGHT, Vol. I, p. 642.) The arrangement shown in Fig. 2 is worthy of consideration. Fig. 3 illustrates how the two propellers on a Wright machine fitted with a tail necessitate a narrow placing of the outrigger spars, and the consequent weakness of the whole tail structure. The fact, too, that the tail plane is comparatively broad may perhaps render the girder as a whole more susceptible to twisting action along its own axis than is the case with the Farman type shown in Fig. 1.—ED.]

LANGLEY'S LAW AND OTHER MATTERS.

[744] In FLIGHT, July 9th, page 533, you refer to Langley's "law," and you give your own conclusions. As a great many people are puzzled by these theories, may I try to put it even more clearly than you have?

As the speed increases, the power required diminishes up to a certain point, because the resistance of the air is greater, and therefore the vertical pressure or lift is augmented, and at the same time the head resistance also decreases, because at high speeds the aeroplane assumes a smaller angle of incidence.

The "certain point" is when the minimum angle is reached, at which the action and reaction of the air will balance the impulse of gravity. If the speed is still increased, the head resistance will increase as the square of the speed, and the machine will ascend according to its velocity.

Lately there have been several accidents, and people are always asking why some machines glide to the ground when the engine stops, and others fall like a stone. This must entirely depend on the height from the ground at which the engine stops. The aero-

plane naturally slows up and begins to fall, and unless there is sufficient height for it to fall until it can regain its speed for horizontal flight, it must crash to the ground. It would be interesting to know the least height from which a machine in still air could glide to the ground when the engine had stopped. This would vary for different machines, according to weight, surface, &c.

With regard to Sir Hiram Maxim's "paradox" aeroplane, surely the solution is that the lift of any flat plane would be increased by a curved top, not because the top lifts, but because the pressure underneath is increased by the decreased pressure over the top curve, caused by the rising current of air in front of the moving surface meeting the plane at a gradually increasing angle; this advance current of air is caused by the reaction of the air under the plane.

Air waves and swirls seem to be very similar to the action of water, only they are more complex and exaggerated.

With regard to the power decreasing as the speed increases, this is well illustrated in the flight of birds. It has been calculated that a gull in rising from the ground gives five wing-beats per second, which are reduced to three beats in horizontal flight, and as the sweep of the wing-stroke is also reduced by the resistance of the air, the power required in flight is about one-fifth of the power required to raise the bird off the ground.

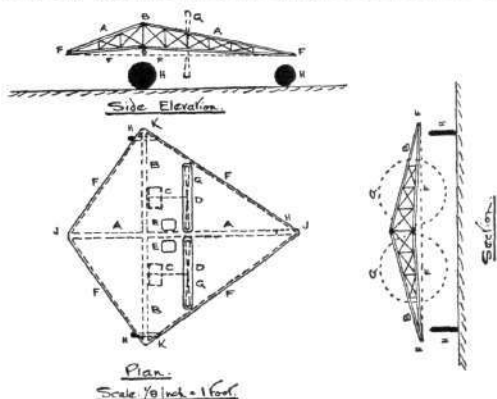
I really must tell you a story against myself. Some kind of parson came here the other day and was much interested in my aeroplane, and having discussed it quite sensibly, he said, "but you will not want an aeroplane soon, you will have angel's wings." As he appeared quite serious, I thanked him nicely for expecting me to go to heaven, naturally thinking he meant that, as everyone here expects me to be killed. However, he was quite horrified, and told me that it would be very difficult for me to get there, and that what he meant was that future aviators would merely strap on a pair of wings and flap around like birds! Wasn't it funny?

LILIAN E. BLAND.

GOODWIN AEROPLANE.

[745] I am extremely glad that you have published three such splendid articles on speed for less power. I enclose you a sketch of an aeroplane. The body of this is to be of aluminium sheet, as all strain is taken up by the main steel girders. I think the description written on the sketch otherwise describes it. I estimate the weight at 1,500 lbs., and speed required to rise at 50 m.p.h. Speed in air 90 to 100 m.p.h.

Description of sketch.—A. Main longitudinal frame; B. Main cross-frame; C. Engines; D. Propeller clearance holes; E. Seats for pilots; F. Outside bracing-frame; G. Propellers; H. Wheels. It will be seen that the outside frame, F F F F, is all on one



plane; the curvature of the plane is from I to I and from K to K. Steering is intended to be done by the hinder disc-wheel, H—side-ways. For deflection the side disc-wheels, H, H, are meant to be used, the general principle being similar to the Dunne aeroplane. West Hampstead.

A. S. GOODWIN.

BRAKES FOR AEROPLANES.

[746] Could not the mishap to Cordonnier's Hanriot monoplane have been averted if he had had some means of putting a brake on his machine's flight, or rather run?

I suppose it was only his impetus which carried him into the River Wey, not his propeller, and I have thought for some time

that a brake on the wheels would stop any aeroplane, if the propeller was still.

Landing in a confined space would be much easier, in my opinion, and the weight would be very little.

Several accidents have been caused by the aviator being unable to pull up in time.

Perhaps, however, there is something to make this idea unsafe or impracticable (though I cannot see it).

I should like to know if there is a model aeroplane club in Liverpool, or, if not, I should like to hear from anyone who is desirous of forming one.

I have made six monoplanes and only one biplane, and have not yet had any success worth mentioning.

Your paper has been most valuable to me in my work, although my models are all my design.

Bootle.

A. G. PUGH.

[In our discussion of the Bournemouth meeting we had occasion to deal with this question of alighting on bad ground, and we expressed the opinion that it would be very desirable if machines were more generally fitted with landing skids than they are at present, and we think that skids such as are used on the Wright machine, for example, undoubtedly tend to minimise the risks of landing, and since such risks are totally undesirable in that they contribute nothing to the progress of flight, everything possible should be done to encourage their use. Wheeled chassis have been so deservedly popular for starting that there has been a tendency to overlook the other side of the question, and there is no doubt that the wheeled chassis has been the cause of several landing accidents that might otherwise have been avoided. Wheels and skids have each such desirable qualities that we think every effort ought to be made to combine them in a form that will provide the advantages of both without the disadvantages of either. A combination chassis with disappearing wheels has already been designed, and was exhibited by Short Bros. at the last Olympia Show, and we have no doubt that if others also turned their attention to this idea, useful developments would quickly ensue.—Ed.]

MODELS.

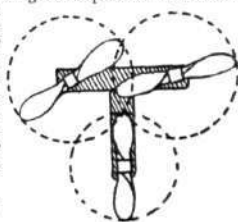
TWIN-SCREW MODELS.

[747] Can any of your readers, having had experience with model aeroplanes, let me know the effect of placing two propellers, side by side, one overlapping the other? I have an "Al-ma" model aeroplane which appears to require more power than one propeller gives. Would a propeller fixed beneath the pair of propellers, thus: prevent the model dipping, which it does now? The propellers are at the extreme rear of the machine.

I should be much obliged for any hints regarding the "Al-ma."

Holloway.

B. G. D.



MODEL BLÉRIOT RIBS.

[748] I am building a Blériot type monoplane. Can any of your readers give me a sketch for the formation of ribs on the main planes.

Lambourn.

L. T. SUTTON.

MODEL CONSTRUCTION.

[749] During the last two or three months I have begun to follow up your excellent paper FLIGHT with much more interest than I first did. In a recent issue (July 30th, 1910), I happen to have noticed the interesting letter (Reference No. 656) entitled "Model Construction." I am at present in a little difficulty how to go about making one to be driven by two propellers, and I think the idea which is shown on the photograph is an excellent one. I have tried to make out how to go about it, but have failed to do so. I should, therefore, feel greatly indebted to the writer if he would explain as clearly as possible the whole idea of the construction. Thanking him in anticipation.

Manchester.

W. BLOOMFIELD.

[750] Your correspondent Mr. S. Guy enquires about the fitting of an elastic motor to a model Farman machine. Perhaps the accompanying rough sketch will be of interest to all who are constructing models on the Farman lines.

